MARINE FISHERY INDUSTRY
OF
SOUTH KANARA

FISH TECHNOLOGY EXPERIMENT STN.
C.F.T.R.I.
28.2.77
MANGALORE.

R. CHANDRA PRAKASH

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Institute of Development Studies
University of Mysore, Mysore

APRIL 1976

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FOREWORD

In a country where majority of the people suffer from under or mal-nutrition, the importance of fisheries needs no emphasis. It is largely for this reason that the development of fisheries constitutes an important element in our national, state and district plans.

Karnataka has a vast potention for the development of both inland and marine fisheries and can contribute greatly to the national effort in this direction. The Institute of Development Studies, therefore, launched a research project to study the potentials and problems of fishery industry in the State. To keep the project within managable limits, it was phased out in three sub-projects - (i) Marine fishing industry in South Kanara, (ii) Marine fishing industry in North Kanara and (iii) inland fishing industry in Karnataka. This report marks the completion of the first phase of this project. We hope to raise enough resources in months a head to take up the other phases too.

I am extremely thankful to Shri Chandra Prakash, Reader in Commerce, for having accepted the responsibility to carry out this project for the Institute of Development Studies. I do hope that the findings and recommendations of this report would be taken in view by the State and Central

Government agencies concerned with this very important industry of the country, in formulating and implementing new development projects and policies.

Mysore,
May 26, 1976.

R.P. MISRA
Director,
Institute of Development Studies.

PREFACE

Marine products exports from the country have reached Rs.100 crores mark in 1975-76. With this the sea-foods have acquired a special place in the country's foreign trade. That they earn much required hard currencies for the country has only further added to their importance. The vast yet unfished marine resources of the country's long and variedly rich coastline provide a tremendous scope for a prosperous future for the marine products industry in general and their exports in particular. However, now a time has come to make a thorough inspection of each and every section of this industry - 'from hull to flag-mast', to speak in marine terminology. A sort of dry-docking is highly essential before the industry undertakes not only a longer and equally hazardous but also a more adventurous voyage. The existence of the regional specialisation and peculiarities in this industry necessitates micro-studies on each and every such region. This study is an endeavour in this direction.

The South Kanara District of Karnataka has not only pioneered the modernisation of fishery industry in the recent past but has also predominated in every facet of this industry in the State. The industry in this region has made a significant progress since 1957-58, more particularly during the 1965 to 1975 period. But it would not be wrong if it is said that the industry has been shrouded with some sort of mysterious clouds. There exist some paradoxical scenes which defy comprehension on mere superficial observations. The government has been nursing this industry with substantial dosages of subsidies and hence, it becomes inevitable that a comprehensive and clear picture of each and every section of this industry is available. This would be in the interest of this industry's future growth.

The present study is primarily based on the extensive field investigations spread over a period of ten months. Practically the entire coast of the district and every area of the industry has been covered in the field investigations. The arrangement of Chapters is such that all the important areas of the industry are dealt with separately in detail. Chapter I provides an elaborate picture of the marine fishery industry of the country as such, followed by the relative position of the State and the South Kanara district. Such an elaboration is deliberate and is meant to provide a broader base for a better understanding of the relative positions. Chapters II to VII deal with 'raw material' base of the marine products industry. Chapter VIII on Finance is used as a 'hinge' which holds together the raw material base on the one hand and the Processing industry on the other. Chapters IX to XI deal with the processing and exports of the marine products. The summary of major findings and the suggestions are provided in Chapter XII.

Shri D.V. Urs, Vice-Chancellor, University of Mysore, has been a source of inspiration to my past and the present research works. His personal involvement in such works have saved many a scholar from inactivity. All the administrative bucks have found a quick solution at his hands. For this I am indebted to him.

I am thankful to Prof: R.P. Misra, Director, Institute of Development Studies, University of Mysore, for providing necessary financial facilities and also for the personal interest in this work.

I am specially grateful to Miss Nutan Kamath and Miss Narayani for their part of assistance in this work.

I owe gratitude to Prof: A.P. Srinivasamurthy for having gone through the manuscript and for suggesting the necessary changes. I would also like to acknowledge the help rendered by Dr. P.S. Tiwari.

Shri Siddaiah, Deputy Director of Fisheries, South Kanara and Shri K. Venkatesh, Managing Director of the Karnataka Fisheries Development Corporation have been very helpful in conducting this study. Shri M.M. Hegde, Statistician, Office of the Assistant Director of Fisheries, Mangalore, readily provided me with the requisite data. Many Commercial Banks and Co-operative Societies furnished detailed information about their activities in this industry.

A large number of Processors and Exporters co-operated in the study by providing much needed information and also their suggestions. I am thankful to each one of them.

If the present study helps in the shaping of a better future for the marine fishery industry of the district and in strengthening its present foundations, then all the efforts that have gone into the preparation of this research study would not be in vail.

April, 1976. R. CHANDRA PRAKASH

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Chapter I

INTRODUCTION

Fish has been an integral part of the culture of the country. It has got interwoven with the mythology and the religion. One can find many a reference to it in the scriptures. It has also been presented as one of the zodiac symbols in Astrology. Even the people engaged in the profession of fishing have found a special place in the cultural fabric of the country. If the fishermen have been praised for their robust health and dare-devil courage, their womenfolk, the "Matsakanyas", have been acclaimed as symbol of perfection in the aesthetic sense of feminine beauty.

However, unlike cow, fish has not remained a sacred part of the religious faith. Fortunately, it has been an economic commodity and a significant part of our food. Long back, in the history it has cut-across the barriers of vegetarianism and non-vegetarianism, a thing which egg has failed to do even today. Fish has been not only an acceptable food but also a much enjoyed delicacy even for the orthodox vegetarians of some parts of the country, especially of the coastal regions. Thus, even as an economic commodity, i.e. food, fish occupies a special place and is nearer to agricultural commodities, such as wheat and rice; rather than to meat.

Modern scientific researches have revealed that fish contains more than 80 per cent protein. In a country like ours, with massive population and, rather unstable agriculture, fish provides a crucial leverage in the solution of food problem, both present and the future. It is a sort of solace and a source of strength to learn that still major portion of the country's potential fish supplies remain unexploited.

The fresh water fishes are found in substantial quantities in the rivers and innumerable ponds. With the coming up of multipurpose dams across the major rivers of the country pisciculture has become an accepted practice. The village tanks and ponds have also been taken up in the development of pisciculture. However, the fresh water fishes hardly account for less than one-third of the total fish catches of the country.

Thus, the marine fishes attract greater attention, than the fresh water fishes. The reason is quite obvious. The peninsular location of the country is said to be highly favourable to marine fishing. The country has a coastline of about 5,600 kms. However, it is not merely the length of the coastline, which has made marine fishing an important part of the country's economic and social framework. It is also the fact that this length of coastline is spread over three seas, which are generally acknowledged as among the best fisheries of the world, viz., Arabian Sea, Indian Ocean and the Bay of Bengal. This 5,600 kms. of coastline provides the country with a continental shelf of about 3,11,680 square kilometres. Located as these waters are in the zones of Tropic of Cancer and the Equator, with the plenty of sunshine almost all round the year, and as they happen to be the meeting place of four currents (the South-West monsoon drift, the North-East monsoon drift, the Indian counter-current and the north equator current) thereby creating a confluence and regular churning of the sea-bed and enriching of the waters with nutrient salts, they provide fertile grounds for the rich marine life. It is the existence of these seas which had made India one of the greatest maritime nations in the annals of world history. No doubt that Indians have left indelible imprints of their maritime supremacy in almost every country of South-East Asia, Egypt and Arabia, Africa and the Americans. For such seafarers marine fishing should have come as a natural habit and with the greatest ease.

As in all other phases of modernisation, India has been left far behind even in the realm of fishing. Despite its vast coastline and the rich rivers, India held only a sixth place in 1970 amongst the world fish producing nations. Peru occupied the first place. Nonetheless, it should be added here that there has been a greater awakening about the importance of marine fishery industry in the past ten years. This is proved by the significant increase in marine fish landings. The total marine fish landings in 1963 was about 0.66 million tonnes, whereas in 1973, it has increased by practically 100 per cent to 1.22 million tonnes.

Lion's Share of the West Coast

The west coast contributes lion's share to the total marine fish landings of the country. It has, at least in last ten years, been contributing more than two-thirds of the total marine fish landings. It would not be erroneous to say that the west coast has been responsible, to a large extent, in the significant increase in the marine fish catches. It can be seen from Table 1, that there has been an increase of about 261 thousand tonnes in the west coast landings as against 101 thousand tonnes in the east coast landings between 1964 and 1973. In terms of percentage, the increase in the respective coasts is rather equal, at about 50 per cent over 1964 figures. Another factor revealed by Table 1 is that any increase or fall in the landings of one coast is invariably accompanied by similar increase or fall in the other coast, as if such fluctuations are jointly affected by a common natural factor. For example, the years 1965, 1969 and 1972 show a decrease in landings for both the coasts. The only exception seems to be the year 1967 wherein, east coast landings showed an increase whereas the west coast a decrease as compared to their respective figures of the previous year.

Tamil Nadu has been the major contributor to the landings in the east coast, followed by Andhra Pradesh and the states of West Bengal and Orissa. The shares of the other two states of coast, viz., Pondicherry and Andamans are not very significant.

In west coast, Kerala has been the leading state and has been, almost every year, contributing more than 50 per cent of the total landings of the west coast. A study of the figures for last ten years reveals that this small state has been contributing far greater tonnes of marine fishes than the total contributions of the entire east coast. Kerala is normally followed by Maharashtra. Next place is occupied in some years by Gujarat and in some others by Karnataka. The next two places are held by Goa and Laccadive.

Table 1: Shares of East Coast and West Coast in the Total Marine Fish Landings, 1964-1973.

('000 Tonnes)

Year	East Coast	Per cent to Total	West Coast	Per cent to Total	Total
1964	214	24.9	646	75.1	860
1965	195	23.4	638	76.6	833
1966	238	26.3	652	73.3	890
1967	256	28.7	636	71.3	892
1968	271	29.0	664	71.0	935
1969	263	28.8	650	71.2	913
1970	273	25.2	813	74.9	1,086
1971	274	23.6	888	76.4	1,162
1972	265	27.0	715	73.0	980
1973	314	25.8	906	74.3	1,220

Source: Central Marine Fisheries Research Institute, Cochin.

Major Species and Geographical Specialisation:

Detailed data are collected by CMFRI, Cochin about the annual species-wise landings of the marine fishes in India. Based on the average landings of various species during the five years period of 1969-73 three major species are: Oil and other Sardines, accounting for 23 per cent of the five years' average total landings; Prawns (both penaeid and non-penaeid) about 14 per cent; and Mackerel, about 12 per cent. These species, among themselves, contribute around 50 per cent of average total marine fish landings of the country. Other species which accounted for about 4 to 5 per cent of the average total catch for the same period are: Harpodon nehereus; Sciaenids; Elasmobranchs; Cat Fish and the miscellaneous category.

CMFRI data also reveal that there exists a sort of coast-wise and state-wise specialisation of species. Oil Sardines were the exclusive species of west coast. Even there, the Kerala coast contributed more than 80 per cent of the landing. So was the case of Prawns, the west coast contributed more than 80 per cent of the penaeid Prawns; Kerala alone accounted for more than 70 per cent of the total landings. In the case of non-penaeid Prawns, it was the monopoly of the Maharashtra state - accounting for more than 95 per cent of the landing in 1973. Mackerel is also a species of the west coast with more than 80 per cent of the catches.

However, the Mackerel seems to be the species of Karnataka with more than 45 per cent of the total Mackerel landings in 1973. It may be recalled here that it is not for nothing that the Karnataka coast is called 'Mackerel Coast'. The Elasmobranchs species seem to be equally shared by east and west coasts. East coast, in that too Tamil Nadu, contributes major share of Leiognathus, sheer fish and mugil. Such a geographical specialisation speaks volumes about the distinctive features of the sea covering the Indian peninsula.

The coastal waters of the country have as many as 200 species of fishes, some of which are not only the exclusive species of the area but also the much sought after delicacies, such as Mackerel, Pomfrets and Bombay Duck. In case of Prawns, India stands second in the world in total landings.

Mechanised Fishing:

At the end of the Fourth Plan, in 1973-74, 9,300 mechanised boats were being operated in the marine fishing in the country, most of them in the inshore waters of the sea. Deep-sea fishing in the real sense of the term, is yet to be a part of the country's marine fishing. Problems faced in this regard are very many; from the non-availability of requisite type of trawlers to the economic feasibility of such efforts. Symposium on development of deep-sea fishing, held in the month of February, 1970, at Cochin has in very clear terms focussed on such problems. In one of the papers at the symposium the nexus of the problems has been beautifully highlighted. It states - "The deep-sea fishing programme will differ from the mechanisation programme in one important respect that it will not be a socio-economic programme but a programme of commercial development". Situations, at least in this regard, seem not to have changed between 1970 and 1975. A large number of traditional wooden fishing boats and canoes continue to contribute significantly to the total tonnage of our marine landings. This is a feature worth noting.

Marine Resources Potentiality:

The potentiality of the seas around the country's coasts with regard to marine fishes has been variedly estimated. The Indicative World Plan had forecast landings of 2 million tonnes in 1975 for India, on the assumption of 4.6 per cent growth rate from 1970 onwards. The landings forecast for 1985 is 3.6 million tonnes, based on the assumed growth rate of 5.6 per cent between 1975-1985. However, a gallop estimate of landings for 1974 has been around 1.18 million tonnes. The real landings for 1974, therefore, could be assumed to be in the range of 1 to 1.25 million tonnes, in which case, it would be doubtful whether in 1975 India could have been anywhere near the estimates of Indicative World Plan, i.e., 2 million tonnes. Some other estimates show an annual potentiality of about 9.22 million tonnes, both demersal and pelagic. Of this the west coast's share is estimated at

6 million tonnes and that of the east coast at about 3.22 million tonnes. However, it is the view of the National Institute of Oceanography that the present yield could be raised to 19 million tonnes in the next few years. The Institute further feels that with systematic exploitation of our ocean waters the yield could be raised to around 100 million tonnes around the year 2,000.

It has been seen that the east coast of India is a weaker partner in the country's marine landings. However, very recent pronouncement of the U.S. Department of Commerce (USDC) states that the Bay of Bengal off the West Bengal and Orissa coasts is rich in deep-sea fishing resources. Their statement is based on the officials of Indian Fisheries Directorate. It is stated that 20 per cent of the total catches of these waters consist of the highly prized white and brown Prawns, which are said to be much more larger than those found off the coast of western India.

The Union Deputy Minister for Commerce has stated that at present India is hardly exploiting 10 to 12 per cent of its potential in the marine fisheries.

Also, it is stated that other countries like U.S.S.R., Korea, Japan and Thailand are getting more catches from the Indian Ocean than India does. All these lead to one conclusion, that marine fishery industry in India has a good future provided potentialities are properly exploited.

Marine Products Export - Trend:

Fish, apart from being food for millions of people, also constitutes an important earner of precious foreign exchange for the country, especially in terms of U.S. dollars and the Japanese yens. The growth of export, both in terms of quantity and value, since 1960 has been quite significant. Table 2 indicates the trends in exports.

In terms of quantity there has been a significant increase in the total exports of marine products between 1960 and 1973, from 16,337 tonnes to 48,785 tonnes. This is an increase of about 300 per cent.

Table 2: Growth in the Indian Marine Products Exports dince 1960:

Year	Quantity (in tonnes)	Value (in lakh rupees)
1960	16,337	40.22
1965	15,457	69,24
1966 *	19,153	135,25
1970	37,175	355.40
1973	48,785	795.80
1974	46,629	763.10

* Rupee devalued on 6-6-1966.

Source: Marine Products Export Review - MPEDA - 1974.

However, in the year 1974, there has been a marginal fall in the quantity of exports. Table 2 only indicates a broad trend in the exports. But when annual figures are looked into a staggering trend in the quantity exported is observed, especially up to 1965. Since 1965, excepting for the years 1971 and 1974, there has been a steady increase in the export of marine products. The lowest quantity of export on record is for 1962 with 11,619 tonnes and highest quantity of export on record is for 1973 with 48,785 tonnes.

In terms of value the trend is more conspicuous with a disproportionate increase as compared to the quantity of exports. Value of exports in 1960 was only Rs.40.22 lakhs whereas in 1973, it was a record figure of Rs.795.80 lakhs. This is about 2,000 per cent increase. Two reasons stand out clearly for such an enormous increase in the value of exports Firstly, the general rise in price in the world markets for marine products. Secondly, the impact of devaluation in the year 1966. It can be observed that there has been about 100 per cent increase in the value of exports in 1966 over 1965 as against not very substantial increase in the quantity of exports over the same period.

Marine Products Exports - Structure:

In spite of a large variety of marine fishes available in the Indian coasts only about nine types of marine products dominate the export scene, with more than 85 per cent of the total quantity and the total value of marine products exports. It is interesting to note that majority of exportable species belong to the western coast. Therefore, one could easily understand the reason for heavy concentration of sea-food processing and exporting units on the western coast, more particularly in Kerala and Karnataka states.

The nine important varieties of marine products exported are: Frozen Prawns; Frozen Lobster Tails; Frozen Froglegs; Frozen Fish; Canned Prawns; Canned Fish; Dried Prawns; Dried Fish; and Shark Fins and Fish Maws. But it is only the Prawns which really dominate the marine products exports scene. In 1974, Prawns frozen, canned and dried, accounted for 77.19 per cent of the total quantity and 89.98 per cent of the total value of marine products exports. This is true for any other year in the past. Other fishes, lobster tails and froglegs are only ancillary contributors to marine products exports. Marine products exports in India are synonym to export of Prawns, as it is very heavily Prawn oriented. Table 3 gives the picture of structure of marine products exports for some years, both in terms of value and quantity of exports.

Concentration of Export Markets:

The markets for the Indian marine products are highly concentrated. In 1974, only two countries, Japan and U.S.A. jointly accounted for 73.5 per cent of quantity and 83.7 per cent of the value of exports. U.K. accounted for 1.9 per cent of quantity and 3.6 per cent of value. Figures for France were 0.7 per cent and 1.0 per cent respectively. Australia accounted for about 2 per cent of the market.

Table 3: Structure of Indian Marine Products Exports

Quantity in tonnes
Value in lakh rupees

Items/Year		1965	1970	1973	1974
1. Frozen Prawns	Q	7,028	22,135	//355,895!	34,361
	V	414.22	2425.15	6581.22	6374.26
2. Frozen Lobster Tails	Q	112	382	380	456
	V	12.74	60.21	106.63	125.73
3. Frozen Froglegs	Q	443	2,545	2,698	1,454
	V	26.24	328.99	449.79	286.52
4. Frozen Fish	Q	8	6	146	66
	V	0.30	0.42	7.31	7.67
5. Canned Prawns	Q	1,148	2,578	2,199	1,516
	V	95.06	395.41	523.69	478.42
6. Canned Fish	Q	...	9	3	2
	V	...	0.71	0.25	0.28
7. Dried Prawns	Q	1,702	1,486	284	116
	V	54.47	83.61	32.30	14.26
8. Dried Fish	Q	4,431	7,269	3,388	1,748
	V	65.22	183.68	109.55	66.58
9. Shark Fins & Fish Maws	Q	244	282	252	259
	V	20.32	59.98	65.69	84.64
10. Other Items	Q	341	483	3,540	6,651
	V	3.10	15.43	81.20	193.91
Total	Q	15,457	37,175	48,785	46,629
	V	692.37	3553.59	7957.63	7632.27

Source: Marine Products Exports Review - MPEDA - 1974.

Apart from the above countries there are about 37 other countries to which Indian marine products are being exported. They, naturally, constitute only minor markets. However, it is interesting to note that in 1974, there was higher rate of growth in these minor markets. Exports to these markets increased by 17.5 per cent in terms of quantity and 8.5 per cent in terms of value. Fish meal is one of the major items of exports to these countries.

MPEPC & MPEDA:

Marine Products Export Promotion Council (MPEPC) is one of the two agencies engaged in the task of export promotion of marine products from India. Council is a non-profit organisation jointly sponsored by the Government of India and the Indian Sea-food Industry. Set up in 1961, it is also engaged in the modernisation and development of production, formulation of quality standards and pre-shipment inspections and their implementation, advertisement and publicity within the country and abroad and the conduct of market surveys and publication of market survey reports. To date many such market survey reports have been published by the Council. With its foreign office at Brussels and with its membership of many international organisations involved in marine products and by working in close cooperation with Marine Products Development Authority, Cochin, the Council has been helping the export trade of marine products in its own way.

The Marine Product Export Development Authority, popularly known as MPEDA, was established by the Government of India under the MPEDA Act, 1972 with headquarters at Cochin. Today, it has its Regional Offices at Cochin, Madras and Bombay. It has multifarious tasks as its objectives, all aimed at the development of every facet of the marine products industry in the country - from fish catching technology to market intelligence and market promotion. Even though the Authority is a part of Union Ministry of Commerce, it works in close liaison with various other Union Ministries, such as Finance, Shipping, Industrial Development, and with the maritime State Governments. All these bodies have their representatives in the governing body of the Authority.

Marine Fishery Industry of Karnataka

Karnataka is one of the important maritime states of the country. It has about 300 kms long coastline, which is about 7 per cent of the coastal length of the country. Lengthwise, the state might not be very fortunate enough. The fact that it is located in the rich west coast of the country and that it constitutes an area of abundant rich species of marine fishes makes it an important maritime state.

The State's coastline extends from Majili in the north, bordering Goa State to Ullal in the south, bordering Kerala State. A staggering trend is observed in the total annual landings in the state's coast. The trend is more erratic than the general trend of the entire west coast. The state's share in the country's total marine landings, and also the share in the landings of the west coast during 1964 - 1973 period are presented in Table 4.

Table 4: Share of Karnataka in Marine Landings of the country and in that of West Coast - 1964 to 1973.

(Landings in '000 tonnes)

Year	Landings of the Country	Landings of the West Coast	Landings of Karnataka	(4) as a % of (2)	(4) as a % of (3)
1	2	3	4	5	6
1964	860	646	104	12.1	16.1
1965	833	638	69	8.3	10.8
1966	890	652	66	7.4	10.1
1967	892	636	49	5.5	7.7
1968	935	664	88	9.4	13.3
1969	913	650	76	8.3	11.7
1970	1,086	813	117	10.8	14.4
1971	1,162	888	104	9.0	11.7
1972	980	715	93	9.5	13.0
1973	1,220	906	92	7.5	10.2

Data Source: CMFRI, Cochin.

It can be seen from the Table 4, that the state's highest share in the country's marine landings was 12 per cent in the year 1964. And ever since then the share has been erratic on lower side. The average share during the ten year period is around 8 to 9 per cent. Even as a share of the west coast landings the state's contribution has been lesser since 1964 - i.e., 16.1 per cent. The average share of the state in the west coast's total landings for the period 1964-1974 would be around 12 per cent. This decrease has been in spite of the fast mechanisation of fishing during the said period.

Species-wise, Oil Sardines, Mackerel and the Prawns (penaeid) are the dominant varieties. A look into the landings of these three varieties between 1964 and 1973 reveals interesting features (Table 5). First of all, the total share of these three species in the total landings has fallen from the dominant position of 88.4 per cent to 64.7 per cent during the 1964-1973 period. This decrease has been steady up to 1969 and since then the trend is rather erratic. The lowest share is recorded in 1972 at 60.3 per cent of the total landings.

Secondly, there has been a steep fall in the landings of oil sardines in this period - from 83,797 tonnes to 15,495 tonnes. The lowest landings of this species is in 1971 with 11,836 tonnes. This decrease has been, more or less continuous up to 1970, and since then a little increase is observed. Oil sardines constituted as much as 80.4 per cent of the total landings in 1964, but in 1973 it accounted for only 17.0 per cent of the total landings.

Thirdly, mackerels have shown a significant increase in their landings from 7,263 tonnes to 35,468 tonnes in the period between 1964 and 1973. The highest landings is recorded in the year 1971 with 64,047 tonnes. In terms of percentage to the total landings mackerels have shot up from a meagre 7.0 per cent in 1964 to 38.7 per cent in 1973.

Table 5: Landings of Oil Sardines, Mackerels and Prawns since 1964, and their share in the total landings of Marine Fishes in Karnataka.

(in Tonnes)

Year 1	Total Landings 2	Oil Sardines 3	Mackerels 4	Prawns 5	Total of 3, 4 & 5 6
1964	104,218	83,797 (80.4)	7,263 (7.0)	1,040 (1.0)	92,100 (88.4)
1965	68,476	39,035 (57.0)	18,125 (26.5)	778 (1.1)	57,938 (84.6)
1966	65,630	44,253 (67.4)	7,102 (10.8)	1,696 (2.6)	53,051 (80.8)
1967	49,185	20,481 (41.6	15,050 (30.6)	1,260 (2.6)	36,791 (74.8)
1968	87,822	53,727 (61.2)	5,736 (6.5)	5,425 (6.2)	64,888 (73.9)
1969	75,798	33,580 (44.3)	13,253 (17.5)	3,980 (5.3)	50,813 (67.0)
1970	116,936	33,834 (28.9)	46,337 (39.6)	7,538 (6.4)	87,709 (75.0)
1971	103,724	11,836 (11.4)	64,047 (61.7)	4,420 (4.3)	80,303 (77.4)
1972	92,676	15,610 (16.8)	32,249 (34.8)	8,058 (8.7)	55,917 (60.3)
1973	91,484	15,495 (17.0)	35,468 (38.8)	8,235 (9.0)	59,198 (64.7)

Note: Figures in brackets indicate percentage to total Landings.

Source: Compiled from CMFRI published data for respective years.

Fourthly, there seems to have been a linear relationship between the two species, the oil sardines and the mackerels. A see-saw trend is conspicuous in the landings of these two species. As is revealed by Table 5, whenever there has been an increase in the mackerels landing, it seems to be at the cost of oil sardines only. Inversely, whenever there has been an increase in the landings of oil sardine the mackerels landings show a definite decrease. It could be seen that the share of oil sardines in the total landings have decreased from the dominant position of 80.4 per cent in 1964 to 17.0 per cent in 1973, whereas the mackerels' share has increased from 7.0 per cent to 38.7 per cent. However, the raise or fall in these two species has not been proportionate to each other.

Fifthly, the total landings of prawns have increased from 1040 tonnes in 1964 to 8235 tonnes in 1973. The landings of 1973 happen to be the highest on record. The trend in landings has not been steady, as there have been steep decreases in some years (e.g., 1969 & 1971) and equally steep increases in some other years (e.g., 1968 & 1970). Rather it looks as if each steep rise has been immediately followed by an equally steep fall in the landings of prawns in the subsequent year. However, such a trend is not visible in 1972 and 1973. In terms of percentage to total landings prawns have risen from 1.0 per cent to 9.0 per cent over the period of 1964-1973.

Sixthly, as against the decrease in the share of the major species of oil sardines, mackerels and prawns, substantial increase is seen in the "Miscellaneous" category which accounted for 14 per cent and 15 per cent of the total landings in 1972 and 1973 respectively. Some other species which have a buoyant trend are elasmobranchs, cat fish, pomfrets, seer fish and sciaenids. But the trend has not been steady in all these species over the period.

Mechanisation:

Use of mechanised boats in marine fishing has shown an appreciable increase over the period, especially after the reorganisation of state in 1956. The state has taken advantage of many schemes of Central Government and the World Organisations, like the ARC scheme, in this regard. Subsidies have been provided along with cheaper loans for the purchase of mechanised boats. In the Fourth Plan alone as much as Rs.85.3 lakh was provided as subsidies in this regard. There were only two mechanised boats in the year 1957-58, but in 1972-73 the number increased to 1,123, which was about 14 per cent of the total number of mechanised boats in the country. Table 6 provides the number of mechanised boats for some years as also the types of mechanised boats in 1972-73.

It can be seen from Table 6, that there has been a rapid growth in the number of mechanised boats in the state since 1965-66. The table reveals that of the 1,123 mechanised boats in 1972-73, as many as 710 were of 30 feet length and 305 of 32 feet length, which totalled for 1,015 mechanised boats. And these boats are mainly used in the fishing of commercially profitable prawns. Apart from the 1,123 mechanised boats about 8,000 traditional country boats are involved in the marine fishing.

Table 6: Growth in the number of Mechanised Boats in Karnataka since 1957-58.

Year	Number	Number of mechanised boats by length in 1972-73	
		Length in feet	Number
		24	19
		28	42
1957-58	2	30	710
1960-61	40	32	305
1965-66	226	36	32
1970-71	1001	45	15
1972-73	1123	Total	1123

Source: Progress of Fishery Industry in Karnataka (in Kannada) published by Fisheries Information Bureau, December 1974.

The development of Karwar and Malpe as fishing harbours, the work of which is under progress, is expected to give a fillip to the mechanised fishing in the state. The Fifth Plan of the State provides for the direct investment of Rs.195 lakhs in the marine fisheries between 1974-79. This sum is apart from Rs.50 lakhs for marketing, processing and storage and Rs.30 lakhs towards research, education and training.

Exports:

The State has substantial exports of its marine products. However, the exports are highly concentrated around prawns; frozen, canned and dried. Between 1968-69 and 1972-73 alone there has been a significant increase in the export figures, both in quantity and value (Table 7). The quantity of exports from the state has increased from 417.99 tonnes in 1968-69 to 3,039.47 tonnes in 1972-73, recording an increase of about 700 per cent. In terms of value, the increase is from Rs.36.73 lakhs to Rs.465.73 lakhs during the said period, which is about 1,270 per cent. The increase, both in terms of quantity and value, is very steep between 1970-71 and 1972-73.

Table 7: Growth in the Exports of Marine Products from Karnataka

Year	Quantity in tonnes	Value in lakh rupees
1968-69	417.99	36.73
1969-70	1,208.80	89.21
1970-71	976.69	82.54
1971-72	1,955.11	213.75
1972-73	3,039.47	465.73

Source: Progress of Fishery Industry in Karnataka (in Kannada) published by Fisheries Information Bureau, December 1974.

Predominance of South Kanara District

The state's 300 kms of coast is shared between the two districts of north kanara and the south kanara. Even though the length of the coast is near evenly shared by these two districts, the fisheries industry is highly concentrated in south kanara district. There are historical and economic reasons for such a predominance of south kanara district. The very economy of south kanara is far different from that of north kanara. Historically speaking, the port at Mangalore could have made the difference in their respective economic bases. Today, south kanara district has a very strong economic base in its areca, beedi, banking, cashew, copra, fish, tiles and transport industries. This district has predominant share in every facet of marine fishery industry of the state, like - number of mechanised boats, number of processing and exporting units and the cold storage capacity as compared with that of the north kanara district. A detailed study of the fishery industry of south kanara, in essence, would mean a study of this industry in the state as a whole.

A bird's eye-view of the district's socio-economic structure and some similar facts about the fishery industry in the area are provided in Appendix I & II.

Methodology:

The present work is based on the extensive field works in the form of surveys and collection of primary data. Three

Chapter II

LANDINGS AND RESOURCES

Trend in Marine Fish Landings

The total landing of marine fish in the district has increased since 1956-57, the year of reorganisation of the state, when the district was made a part of Karnataka. The increase is from 41,000 tonnes in 1956-57 to 58,200 tonnes in 1974-75, indicating about 43 per cent increase over 1956-57 landings. However, Table 8 clearly reveals an erratic trend in the landings of marine fishes in south kanara coast, it is so erratic that no generalisation of any type is possible of either increasing or falling trend. However, two points could be observed. First, mostly increase or fall has been quite steep, for example, from 41,000 tonnes in 1956-57 to 72,500 tonnes in 1957-58 and down to 46,000 tonnes in 1958-59, and a further steep fall to 27,000 tonnes in 1959-60.

Second, except for the years 1960-61, 1966-67, 1967-68 and 1970-71, in past 19 years a decrease in one particular year has invariably been followed by another decrease in landings in the next year. For example, in 1958-59 and 1959-60; in 1961-62 and 1962-63 and in 1971-72 and 1972-73. Similarly, an increase in a particular year has invariably been followed by another dose of increase in the next year. For example, in 1963-64 and 1964-65; in 1968-69 and 1969-70 and in 1973-74 and 1974-75. The reasons for such a phenomenon, if one could identify them, has to be the problem for the marine biologists.

Table 8: Trend in Marine Fish Landing

Year	Quantity in tonnes	Percentage variation from preceding year	Value in lakh rupees
1956-57	41,000	-	48
1957-58	72,500	+ 75	82
1958-59	46,000	- 37	65
1959-60	27,000	- 41	38
1960-61	55,000	+104	65
1961-62	35,000	- 37	39
1962-63	33,000	- 6	60
1963-64	36,000	+ 9	81
1964-65	70,000	+ 95	101
1965-66	56,000	- 20	120
1966-67	84,000	+ 30	184
1967-68	36,000	- 57	142
1968-69	45,000	+ 25	204
1969-70	54,000	+ 20	266
1970-71	66,400	+ 23	255
1971-72	50,700	- 24	214
1972-73	38,700	- 23	293
1973-74	55,500	+ 41	805
1974-75	58,200	+ 5	414

Data source: Assistant Director of Fisheries, Mangalore.

The highest landing in past 19 years recorded was in 1966-67 with 84,000 tonnes. The next highest of 72,500 tonnes was in 1957-58. The lowest landing was in 1959-60 with 27,000 tonnes. Parodoxically a landing of 38,700

TREND IN MARINE FISH LANDING
1956-57 TO 1974-75

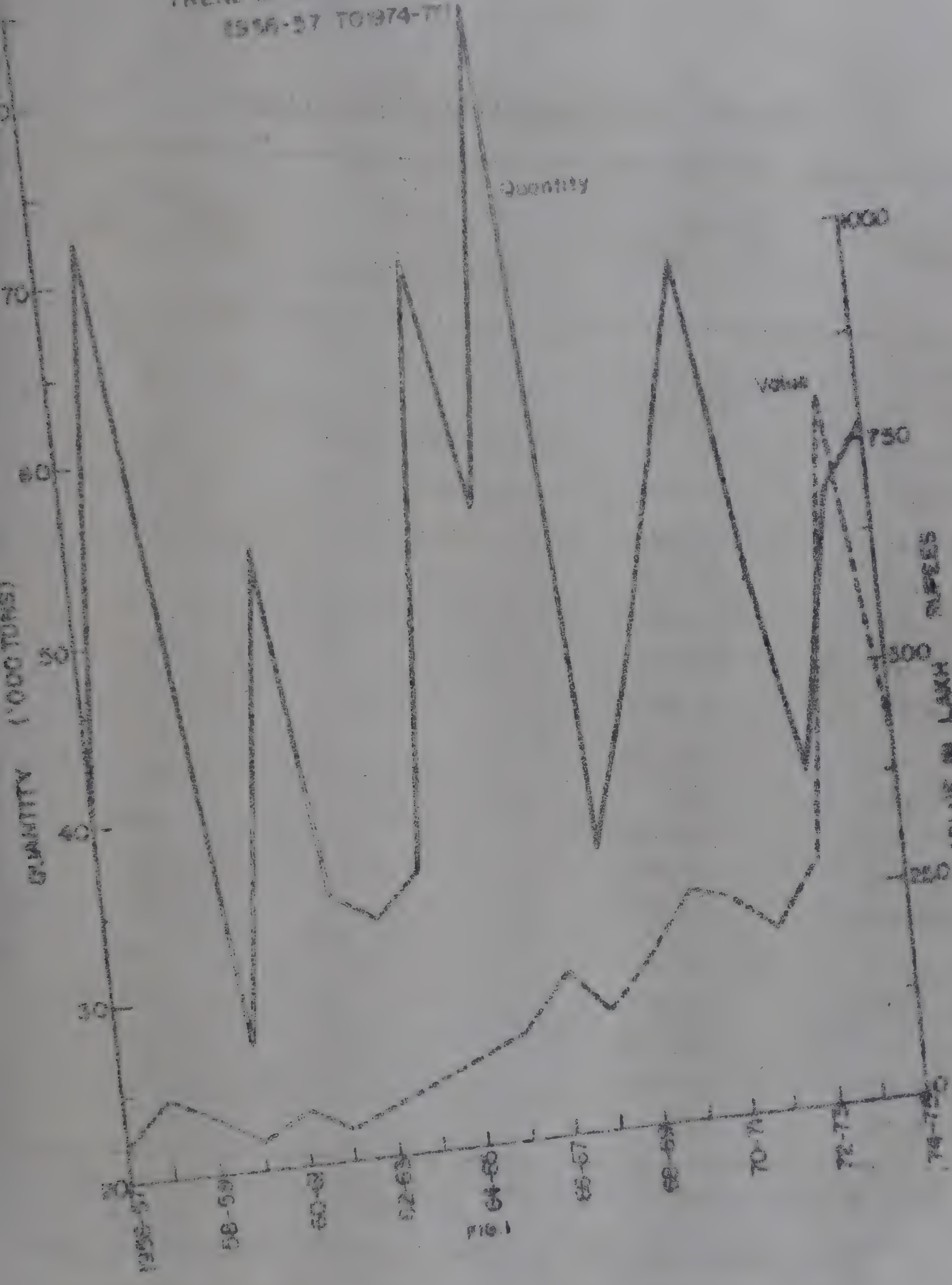


FIG.1

tonnes in 1972-73 has been termed as the "Year of Fish Famine". It could be because, since 1959-60 the commercial complex of marine fishing had undergone a tremendous change with increasing exports. It could also be because of the fact that in preceding four years to that year the landings were far better. And also it could be because that from a landing of 66,000 tonnes in 1970-71 there had already been a steep fall to 50,000 tonnes in the preceding year of 1971-72 and the fall from 50,700 tonnes to 38,700 tonnes was once again a steep one.

However, the trend in the value realised, as can be seen in Table 8 is most revealing. The value of 41,000 tonnes in 1956-57 was a bare Rs.48 lakhs, whereas the value of 55,469 tonnes in 1973-74 is as high as Rs.805 lakhs, which means that on an average the value of fish per tonne has increased from Rs.117 to Rs.1,451 between 1956-57 and 1973-74, or by 1,142 per cent. However, the value realised per tonne in 1974-75 tumbled down by about 50 per cent, to Rs.711 from Rs.1,451 in 1973-74. Consequently, the value realised by the total landing of 58,200 tonnes in 1974-75 was as less as Rs.411 lakhs, even though there was 5 per cent increase in landings over 1973-74. The price trend will be discussed separately.

Taluk-wise Analysis of the Landings:

The total landing figures for the district would not be in a position to disclose the real picture of performance of fisheries in the district. At best they can only present an overall trend in the total landings. Whereas, an analysis of the total landings of the district by the existing three taluks, projects a better picture about the geographical dispersal of the fisheries in the district and their performance trend over a period.

Mangalore, Udupi and Coondapur taluks have a coastline of about 45 kms, 38 kms and 58 kms respectively. Table 9 presents the total landing for the ten year period of 1965-66 to 1974-75 by these three taluks. It could be seen from the table that two taluks of Mangalore and Udupi are the major contributors to the total landings in the district, which among themselves account for, on an average, more than 90 per cent of the total landings. These two taluks, on an average, have been contributing more or less equally to the total landings. On the other hand, Coondapur taluk's share has been, on an average, around 5 per cent to 10 per cent. This is in spite of larger coastal length covered by the Coondapur taluk as compared with the other two taluks. Even though, it should be conceded here that the length of coastline alone cannot be the decisive factor in the landings. A very small area could be very rich in marine life, whereas very large area could be very poor. It all depends on the existence of fishing grounds rather than on the length of coastline.

Table 9: Trend in Taluk-wise landings between 1965-66 and 1974-75.

(Quantity in tonnes)

Year	Mangalore Taluk	Udupi Taluk	Coondapur Taluk	District's Total
1965-66	27,000	26,000	3,000	56,000
1966-67	46,000	33,000	5,000	84,000
1967-68	21,000	11,000	4,000	36,000
1968-69	26,000	15,000	4,000	45,000
1969-70	23,000	25,000	6,000	54,000
1970-71	17,000	36,000	13,000	66,000
1971-72	18,700	21,800	10,200	50,700
1972-73	12,800	15,900	10,000	38,700
1973-74	25,000	18,000	12,500	55,500
1974-75	24,000	26,200	8,000	58,200

Note: Figures have been rounded off.

Data source: Assistant Director of Fisheries, Mangalore.

As compared with landing figures of 1965-66, those for 1974-75 indicate a decrease from 27,000 tonnes to 24,000 tonnes in Mangalore taluk; a very marginal increase of 200 tonnes from 26,000 tonnes to 26,200 tonnes in Udupi taluk, but a substantial increase from 3,000 tonnes to 8,000 tonnes in Coondapur taluk. The overall increase in the total landings of district during 1965-66 to 1974-75 from 56,000 tonnes to 58,200 tonnes, as can be seen from the Table 9, is accounted by the substantial increase in Coondapur taluk, as otherwise, there has been a decrease in Mangalore taluk and rather a stagnant situation in Udupi taluk.

Over a period of last ten years, fisheries in the Coondapur coast have been showing some satisfactory progress. During 1969-70 and 1970-71, when there was a steep fall from 23,000 tonnes to 17,000 tonnes, in the Mangalore coast, the Coondapur coast showed a more than 100 per cent increase, from 6,000 tonnes to 13,000 tonnes. However, even Udupi taluk during this period showed a substantial increase, from 25,000 tonnes to 36,000 tonnes. But in the subsequent year 1971-72, when there was a marginal increase in Mangalore coast from 17,000 tonnes to 18,700 tonnes, and a steep decrease in Udupi coast from 36,000 tonnes to 21,800 tonnes, the decrease in Coondapur coast was not drastic, from 13,000 tonnes to 10,200 tonnes. However, the significant feature of Coondapur coast is revealed in the year 1972-73, the year of fish famine, when there was a drastic fall in the landings of both Mangalore (18,700 tonnes to 12,800 tonnes) and Udupi coasts (21,800 tonnes to 15,900 tonnes), there was a very insignificant fall of only 200 tonnes (from 10,200 tonnes to 10,000 tonnes) in this coast.

The highest landing figure in the past ten years for the district is 84,000 tonnes in 1966-67. This corresponds to the highest landing figure of Mangalore taluk only, i.e., 46,000 tonnes for that year. Whereas, the highest landings for Udupi and Coondapur taluks are in 1970-71, at 36,000 tonnes and 13,000 tonnes respectively. Similarly, the lowest landings for the district in the same ten years period is in

1967-68 at 36,000 tonnes. But this corresponds to the lowest landing figures for Udupi taluk at 11,000 tonnes in the same year. The lowest landings for Mangalore taluk being 12,800 tonnes was in 1972-73 and for Coondapur taluk 3,000 tonnes was in the base year of the ten year period, i.e., 1965-66. This means that the violent fluctuations in landings in these three taluks are, more or less, independent of one another. This is proved by the fact that except for the years 1967-68 and 1972-73, when there was decrease in all the three taluks, and the years 1966-67 and 1973-74 when there was an increase in all the three taluks, in the remaining six years a decrease in one or two taluks is accompanied with an increase in the other two or one taluk.

In the years 1969-70 and 1970-71, a decrease in the landings in Mangalore taluk is accompanied by steep increase in the landings of both Udupi and Coondapur taluks, as if there was a mass northward migration of the fishes from areas of Mangalore taluk to areas of other two taluks. In the following year, 1971-72, a steep decrease in both the taluks of Udupi and Coondapur is accompanied by a small increase in the Mangalore taluk. As if the migration process was reversed in this year from north to south. However in 1974-75 a marginal decrease in landings in Mangalore coast and a steep decrease in Coondapur coast is accompanied by a steep increase in the landing of Udupi coast. As if there was northward migration of shoals of fishes from Mangalore coast and southward from the Coondapur coast, Udupi coast being located in between these two taluks. However, it should be added that such an increase or decrease has not been of same intensity and this is projected in the changing figures of the total landings of the district.

Important Landing Centres:

As has already been noted that there are 15 important marine fish landing centres in the district. Mangalore and Udupi taluks have 6 landing centres each and the Coondapur taluk has the remaining three. Obviously not all the 15 landing centres have equal share in the total landings. Two of the influential factors in this regard are, firstly the richess of the ocean in fishery resources near the landing centre, and secondly the proximity of a particular landing centre to markets, and the nature of markets themselves, like for immediate consumption, for processing and exports.

It can be seen from Table 10, that based on the landing average for five years of 1970-71 to 1974-75, Mangalore, Kulai, Hosabettu and Baikampady are the leading landing centres of Mangalore taluk. Mangalore city itself accounts for nearly 45 per cent of the landings of the taluk. In Udupi taluk landing centres in order of contributions are Malpe, Moolki and Udyawar. In Coondapur taluk Gangolli and Maravanthe are leading centres. These nine landing centres account for more than 80 per cent of the landing of the district.

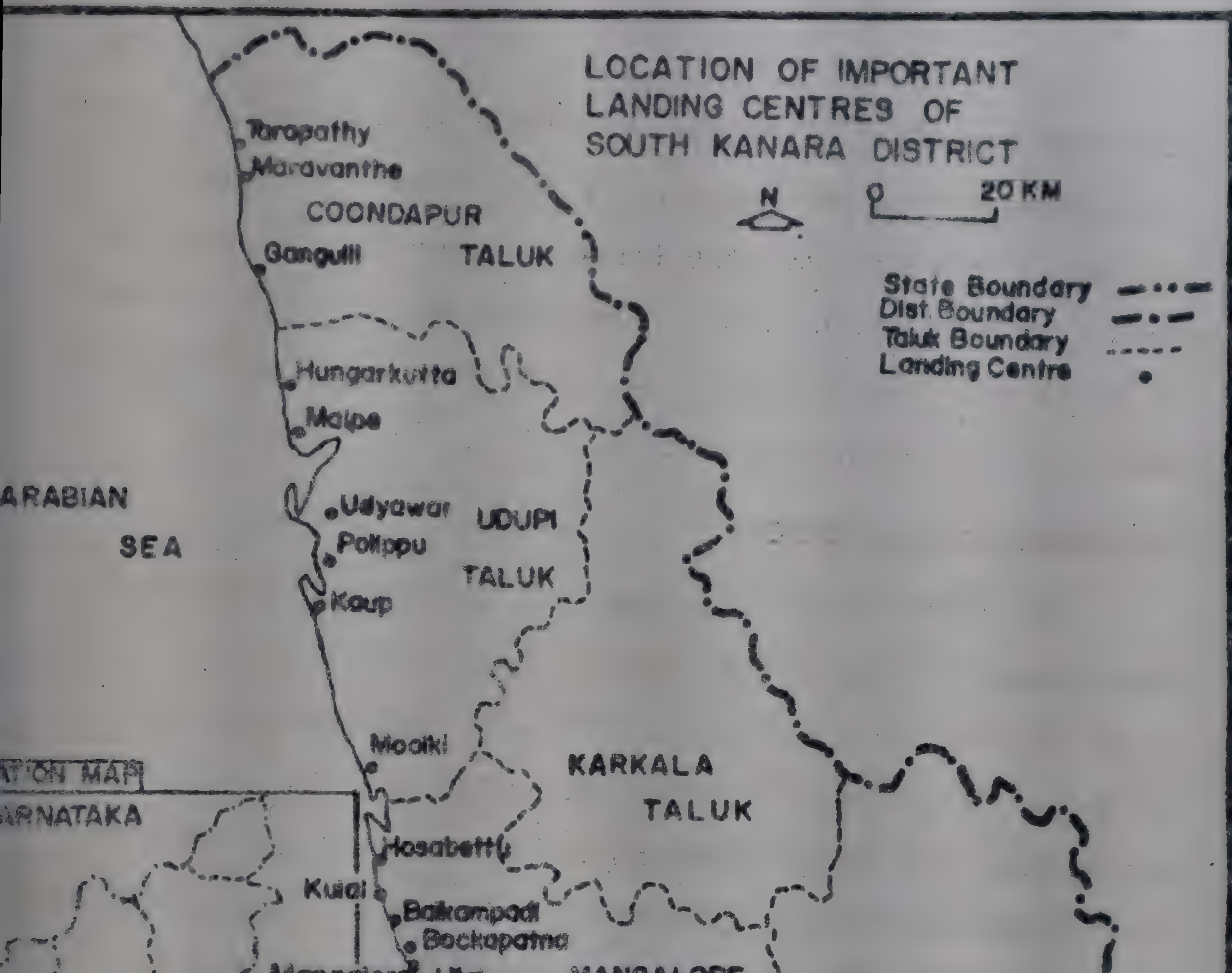

LOCATION OF IMPORTANT LANDING CENTRES OF SOUTH KANARA DISTRICT
N
0
20 KM
State Boundary
Dist. Boundary
Taluk Boundary
Landing Centre
Tarapathy
Maravanthe
COONDAPUR TALUK
Gangulli
Hungarkutta
Malpe
ARABIAN SEA
Udyawar
Polipu
UDUPI TALUK
Kaup
Moolki
KARKALA TALUK
Hosabettu
Kulai
Baikampadi
Bockapatna
Mangalore
Ulal
MANGALORE TALUK
PUTTUR TALUK
KERALA STATE
ARNATAKA
SOUTH KANARA
100
km

FIG.2

Table 10: Landing trend in 15 landing centres from 1970-71 to 1974-75:

(Quantity in Tonnes)

Name of the landing centre	1970-71	1971-72	1972-73	1973-74	1974-75	Average Landings
A. Mangalore Taluk:						
1. Ullal	683	1,232	109	51	40	423
2. Mangalore	5,838	6,697	7,397	15,112	3,881	7,785
3. Bockapatna	1,741	1,484	865	1,727	733	1,310
4. Baikampady	3,273	2,205	1,767	3,239	2,526	2,602
5. Kulai	2,444	2,128	1,139	1,776	16,380	4,773
6. Hosabettu	3,186	4,987	1,585	3,353	286	2,679
Total	17,165	18,733	12,862	25,258	23,846	19,572
B. Udupi Taluk:						
7. Moolki	7,683	3,685	2,071	2,059	14,799	6,059
8. Kaup	1,625	1,727	540	1,385	...	1,055
9. Polippu	3,099	1,860	766	1,526	1,180	1,686
10. Udyawar	8,223	3,651	1,658	3,245	1,872	3,729
11. Malpe	12,031	8,721	9,773	8,268	7,001	9,159
12. Hungarcutta.	3,231	2,113	1,081	1,162	1,341	1,786
Total	35,892	21,757	15,889	17,645	26,193	23,474
C. Coondapur Taluk:						
13. Gangulli	6,206	4,762	5,769	6,184	3,596	5,303
14. Maravanthe	4,571	3,068	2,697	2,934	2,245	3,103
15. Tarapathy	2,582	2,365	1,498	3,449	2,340	2,447
Total	13,359	10,195	9,964	12,567	8,181	10,853
Grand Total:*	66,400	50,700	38,700	55,500	58,200	53,900

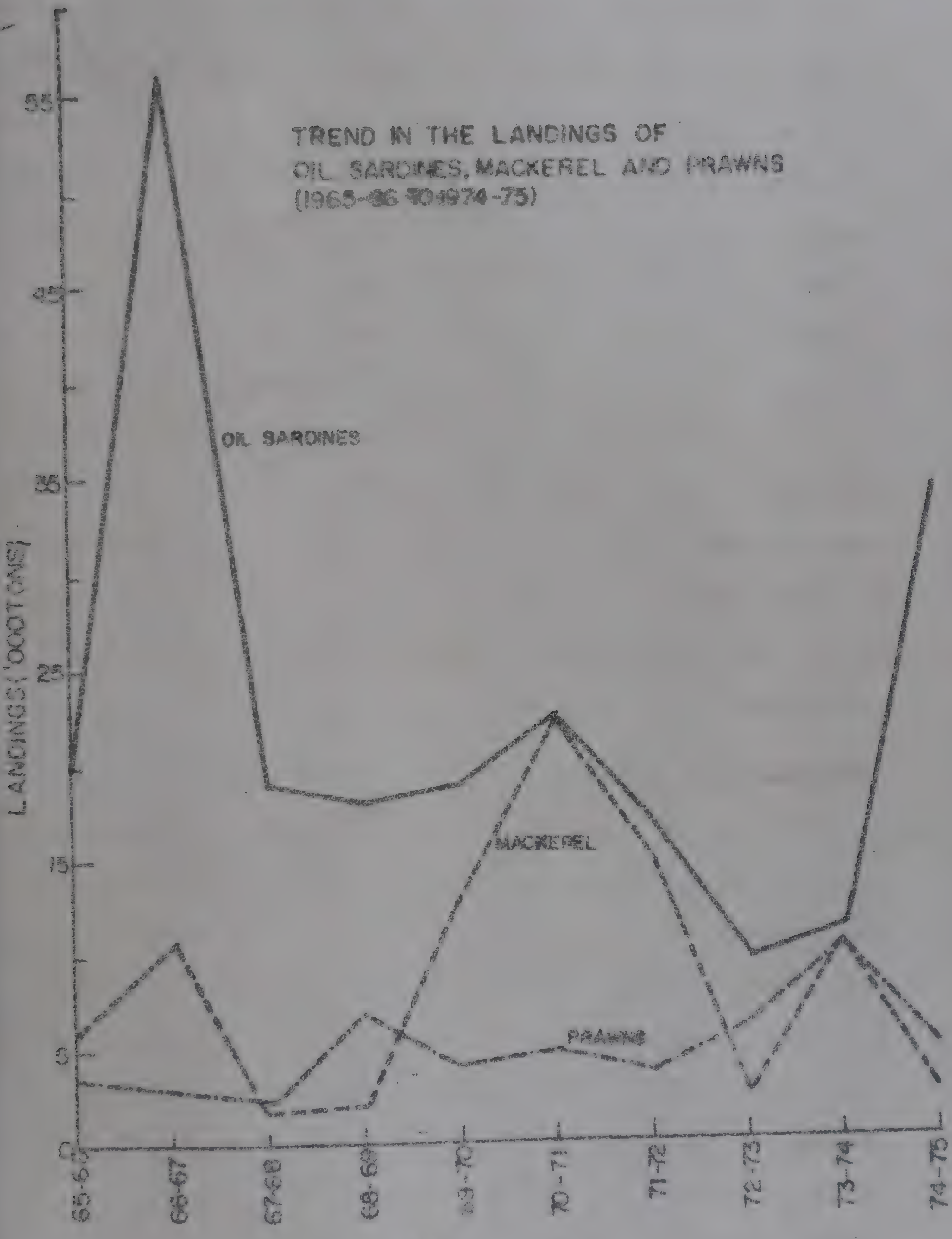
* rounded off.

Source: Assistant Director of Fisheries, Mangalore.

However, the landing in any given centre has not bee steady over the period of five years, 1970-71 to 1974-75. Steep variations in landings from year to year are observed For example, in the case of Mangalore centre there was a co tinuous increase from 1970-71 up to 1973-74, (from 5,838 tonnes to 15,112 tonnes), but there was a sudden steep decrease in 1974-75 from 15,112 tonnes to 3,881 tonnes. Whereas, the adjoining centre of Baikampady, which had been having meagre landing up to 1973-74, had an unprecedented landing of 16,380 tonnes in 1974-75. In the case of Udupi taluk in the year 1974-75 Moolki seems to have replaced Mal in total landings as compared to 1970-71 figures. However in the five years average landings Malpe has maintained its predominant place in Udupi taluk.

Important Species:

Table 11 lists important nine species of marine fish of south kanara coast and the trend in their landings for t years period from 1965-66 to 1974-75. Oil sardines, mackerels, prawns, silver bellies, seer fish, cat fish, sciaenids, soles and shark, rays, skates constitute the lea ing contributors. These nine species account for, on an average 75 to 80 per cent of the total landings of the district. However, apart from these nine major species, the miscellaneous fishes as a single category account for a su stantial share in the total landings.



TREND IN THE LANDINGS OF OIL SARDINES, MACKEREL AND PRAWNS (1965-66 TO 1974-75)

FIG.3

Table 11: Trend in the landings of nine important species during 1965-66 to 1974-75.

(Landings in Tonnes)

Sl. No.	Species	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Oil Sardines	20,587	51,597	18,802	17,856	18,030	22,235	16,969	9,979	11,335	34,466
2.	Mackerels	6,260	10,326	1,625	1,900	12,860	22,054	15,091	2,366	11,491	2,661
3.	Prawns	3,452	3,154	2,361	6,900	4,300	4,900	4,140	6,326	11,224	5,071
4.	Silver Bellies	313	904	264	256	1,178	248	802	2,698	1,203	2,133
5.	Seer Fish	134	506	292	238	872	893	345	229	407	1,999
6.	Cat Fish	517	2,088	4,217	4,770	5,547	2,138	1,294	1,378	1,436	1,622
7.	Sciaenids	850	653	49	266	119	144	902	887	625	294
8.	Soles	5,613	588	644	1,007	644	373	1,276	1,407	1,009	1,197
9.	Sharks, Rays and Skates	302	244	309	283	348	973	838	812	522	500
	Total	38,028	70,060	28,563	33,476	43,898	54,013	41,657	26,582	39,252	49,943
	Miscellaneous species	16,750	13,014	7,047	10,451	9,600	10,865	5,809	8,600	14,457	7,000
	Other species	1,222	926	390	1,073	502	1,522	2,234	3,508	1,791	1,257
	District's total landings.	56,000	84,000	36,000	45,000	54,000	66,400	50,700	38,700	55,500	58,200

Data Source: Assistant Director of Fisheries, Mangalore.

Oil Sardines:

Quantitatively, oil sardines have been the major contributor to the total landings of marine fishes. The highest quantity of oil sardines landed was in 1966-67 with 51,597 tonnes and lowest on record being 9,979 tonnes in 1972-73. There has been steep variations in their landings from year to year. In the 1974-75 they showed a 304 per cent increase in their landing over 1973-74 figures. However, the average landings of this species in the second five years (1970-1975) shows a markable reduction to 19,007 tonnes as compared with the average landing between 1965-66 and 1969-70, at 25,034 tonnes. In the year 1974-75 they accounted for about 60 per cent of the total landings.

Mackerels:

Mackerels' share has not been very substantial in the coasts' landings. It has been very erratic. The landings were 6,260 tonnes in 1965-66, but in 1974-75 were as low as 2,661 tonnes. An improvement is seen in the average landings in the second five year period of 1970-75, at 10,725 tonnes, as compared to the average landings of 6,594 tonnes during th first five year of 1965-66. In 1974-75, mackerels hardly contributed 5 per cent to the total landings. There had been about a 77 per cent fall in the landings in 1974-75 as compared with 1973-74. It is obvious that the name "Mackerel coast" for Karnataka's coast has been earned not by south canara coast. However, comparable figures are not available for the relative contributions of north kanara coast.

In Chapter I, a see-saw relationship in the landings of oil sardines and mackerel in Karnataka coast has been observed. But it is very interesting to note that no such tendency was prevalent in south kanara coast, except for the two years of 1967-68 and 1968-69 and 1973-74 and 1974-75. In all the other years in the study period both of these species show a tendency of joint increase or decrease, though the intensity of such variations has not been the same in these two species.

Prawns:

Quantitatively, praws, on an average, have not been a major part of the coast's landings, but it is the commercial importance as a chief export product that has placed prawns on the top of the list in the district's sea food industry. For that matter, whole of the sea food industry in south kanara is spum around purely on these exchange earners.

In general, the prawn landings in south kanara coast have been showing a steady increase between 1965-66 and 1974-75. During this period, the landings have increased from 3,452 tonnes to 5,071 tonnes. However, in the year 1974-75, there was a steep fall of about 55 per cent over the 1973-74 figures. This decrease is in line with the overall decrease in the landings of prawn in the west coast, especially the bordering Kerala state. The average landings during five years of 1970-71 to 1974-75 improved to 6,332 tonnes from 4,031 tonnes during 1965-66 and 1969-70.

The prawn season for 1975-76 has started with unprecedented bumper landings. Landings during the two weeks starting from 1st September 1975 had been a record in the last five years. Some mechanised fishermen stated to have had better catches in this short period as compared with the total catches during 1974-75. However, the landings in the coast came to a halt by the third week of September 1975 and the fishermen moved to Cannanore coast in Kerala where the prawns had shown up in large quantities.

Other Species:

Apart from the three major species of oil sardines, mackerels and prawns, other species like, cat fish, silver bellies, sciaenids, soles, sheer fish and shark, rays, skates have shown considerable improvement in their average landings

As can be seen from the table 11, the miscellaneous category of fishes constitutes substantial portion of the total landings of the coast. However, the average landings of this category has shown a decrease during five years between 1970-71 to 1974-75 to 9.544 tonnes as compared with 11,632 tonnes of five year period of 1965-66 to 1969-70. Like in the case of all other varieties, the variations in landings from year to year are quite steep in this category as well. In 1974-75 alone, there was a decrease of about 50 per cent in the landings of miscellaneous category over the 1973-74 figures.

Prices:

During the ten years period of 1965-66 to 1974-75, there has been a significant increase in the prices of all the nine important species (Table 12). The rise in prices vary between 276 per cent in the case of oil sardines to 827 per cent in the case of prawns.

Specie-wise prices of oil sardines show a fluctuating trend during the period of 1965-66 to 1974-75. The highest average price recorded was Rs.302 per tonne in 1973-74, whereas very next year, 1974-75, the average price decreased to Rs.276 per tonne. However, during the five years of 1970-71 to 1974-75, the average price per tonne was better than in the earlier five years of 1965-66 to 1969-70.

In the case of mackerels the highest average price per tonne fetched was in the year 1974-75 at Rs.2,382. This price was nearly 100 per cent more than in the preceding year of 1973-74. During the five years of 1970-71 to 1974-75, there had been a continuous upward trend in the average price.

Prawns started with an average price of only Rs.325 per tonne in the year 1965-66 and at the end of five years, in 1969-70, the average price had reached Rs.1,737 per tonne.

This rise was continuous. However, there was a fall from Rs.1,737 per tonne to Rs.1,400 per tonne in the year 1970-71. During 1973-74, the average price reached the highest for the ten years period at Rs.4,411 per tonne. But in the immediat succeeding year of 1974-75, the average price fell nearly by 50 per cent to Rs.2,686. This fall in price has been significantly responsible for the nearly 50 per cent decrease in the value of marine landings in 1974-75 over 1973-74, from Rs.805 lakhs to Rs.411 lakhs. It is to be noted that the fall in the average prices of prawn is accompanied by the little over 50 per cent fall in the prawn landings over 1973-74, a phenomenon which is rather paradoxical and which does not fit into the generally accepted relationship of price wit that of supply. However, the average price of Rs.2,686 per tonne, though only about 50 per cent of 1974-75 price, is the second highest price for prawns recorded in the ten years period of 1965-66 to 1974-75.

In the case of other species the average price trends show a significant rise during the ten year period of 1965-6 to 1974-75.

This increasing price trend, when studied along with the increasing landings, speaks about the prosperity of the marine fishery industry in general. It certainly provides the requisite economic and commercial base for the development of this industry in the future.

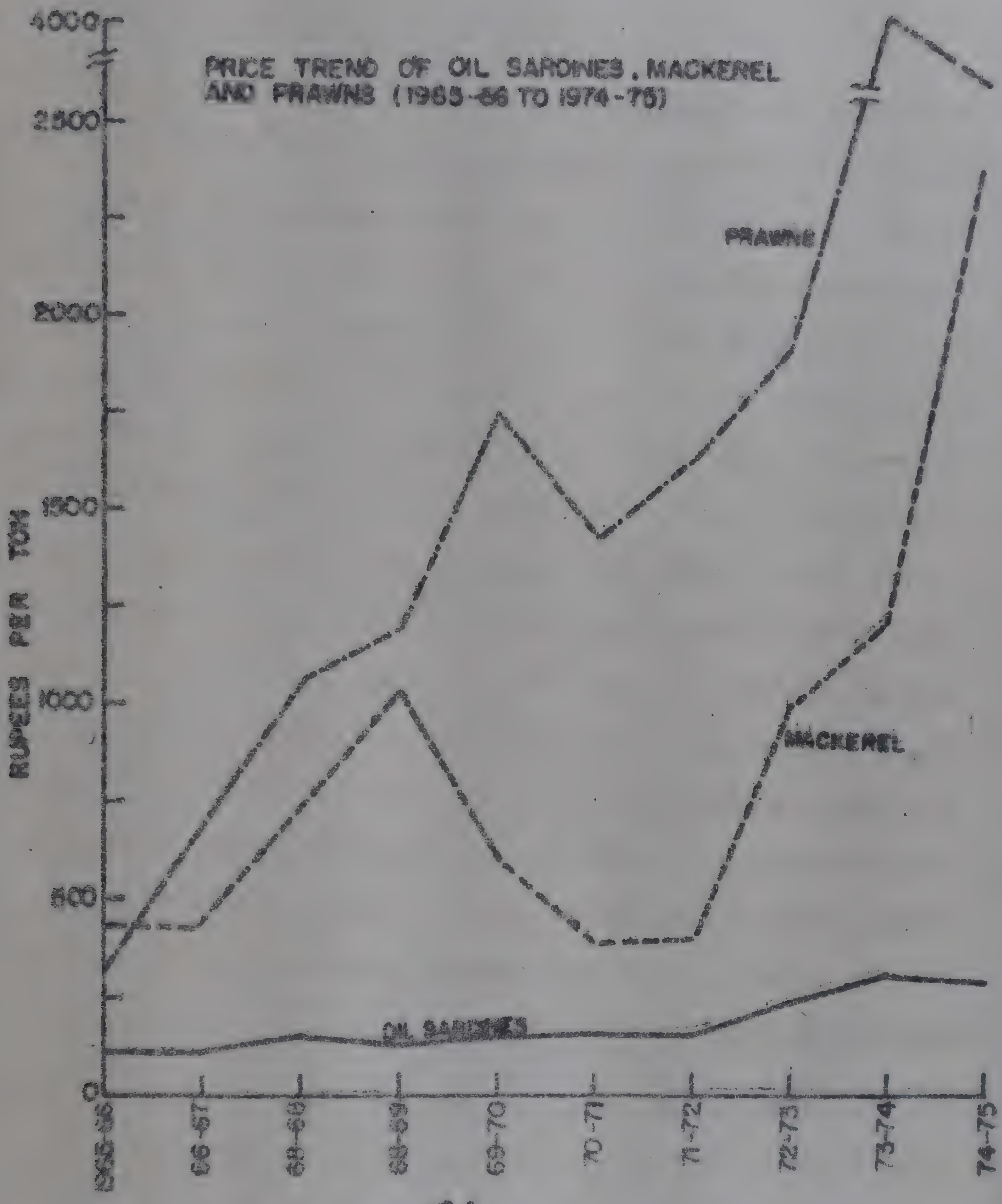

PRICE TREND OF OIL SARDINES, MACKEREL AND PRAWNS (1965-66 TO 1974-75)
RUPEES PER TON
4000
2500
2000
1500
1000
500
0
PRAWNS
MACKEREL
OIL SARDINES
1965-66
66-67
67-68
68-69
69-70
70-71
71-72
72-73
73-74
74-75

FIG.4

Table 12: Average prices of nine important species during 1965-66 to 1974-75.

(Rupees per tonne)

Sl. No.	Species	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Oil Sardines	100	96	150	127	148	161	155	234	302	276
2.	Mackerels	425	420	745	1,030	598	389	405	987	1,200	2,382
3.	Prawns	325	690	1,063	1,170	1,737	1,400	1,570	1,898	4,411	2,686
4.	Silver Bellies	290	255	406	342	283	380	218	361	251	834
5.	Seer Fish	662	970	1,895	1,444	917	981	1,124	1,687	1,800	1,450
6.	Cat Fish	325	400	465	461	483	522	713	756	889	1,020
7.	Sciaenids	318	230	410	393	534	609	401	500	603	816
8.	Soles	135	275	435	501	417	354	285	435	402	432
9.	Sharks, Rays and Skates.	680	1,070	1,342	1,154	942	629	913	1,393	1,035	1,753

Data Source: Assistant Director of Fisheries, Mangalore.

Resources

The fishable area of the district's coast is estimated at about 16,000 square kilometres, of which only one-fifth is said to be exploited at present. The coastline is not favoured by the natural factors as there exists a steep narrow continental edge. In other words, there is a comparative closeness of the 100 fathoms line about 50 nautical miles off-shore. However, such an unfavourable factor seem to have been made good by the westward flowing rivers in the district. These rivers bring a large quantity of land washe water, rich in fauna. The torrential rains during the rain season of May - October (immediately preceding the fishing season) with an average rainfall of over 100" help the flushing of such rich fauna through the rivers. The rivers also form sand bars at their mouth, thus converting their estuari into rich natural hatcheries. To add to these factors, the monsoon winds set up surface drifts and churn-up the waters of the Arabian sea. In this process, rich organisms come to the surface and attract the shoals of the pelagic fishes whic seek shelter in these estuaries during the rough monsoon season. Thus, the district has reasonably favourable, if not exceptionally favourable, fisheries on its coast.

As yet, there has not been an exclusive and exhaustive survey and estimate of the marine resources of the south kana coast. In the past, the Indo-Norwegian endeavour to assess the marine wealth of the entire Indian coast had made some definite estimates of the west coast as a whole. The survey indicated that west coast waters of 50 metre depth or less have an organic production which may offer a fish yield of about ten tonnes per year for each square kilometre. In waters deeper than 50 metres, the organic production is believed to be sufficient to support an yield of about four tonnes per square kilometre per year. At present, most of the fishing is done within 20 metres depth contour line.

Based upon the paper "Marine Fishery Resource of India" presented at the Symposium on Deep Sea Fishing, (Cochin, 1970, CMFRI), some estimates for the Karnataka state as such have been made. As per this estimate, it seems possible that the marine fish landings from fishing up to 200 metre contour line could be increased by 100,000 tonnes per season in the Karnataka state. And it is assumed that about 50 per cent of this increase could be harvested from Malpe in south kanara district.

At present, some specific intensive surveys off the coast of south kanara are being carried out by a unit of Exploratory Fisheries Project under the Central Government sponsorship. An office of EFP, with an Assistant Director in charge, has been recently located at Mangalore. This unit is equipped with a 57' survey vessel. In the month of November 1975, the unit was successful in locating a bumper shoal of cat fish and hauled up as much as 400 tonnes of this species over a short period. The unit has hopes to locate further such shoals in south kanara coast.

The State Government has also realised the need to learn the secrets of the district's coast with regard to its marine wealth. It has also set up a survey unit of its own. It is headed by an Assistant Director in the Fisheries Depar ment. The unit has one 43½' survey vessel and three other vessels of smaller sizes. However, the unit has just starte its operations.

It is interesting to note that as early as in 1958, when the mechanised fishing was still in its early days in th district, the idea of using the aeroplanes for locating the shoals, stationary and migrating, and relaying their positio to the fishermen was thought to be very valuable. It was also substantiated with the experience of such a trip during which fish shoals could be seen through transparent blue waters during noon. It was also suggested that the services of the Indian Airlines Corporation could be requisitioned to look out for the shoals and convey the information to the airports for transmission to the fishermen. Since then, the marine fishery in the district has undergone an unrecognisabl change and has become a highly commercial proposition. As t why this suggestion should not be put into profitable use is a question worth pondering now. Such aerial surveillance could support the survey vessels and hasten the process of fishery development.

Apart from its own coastal recources the State Government is contemplating in terms of taking up tuna fishing as a part of its deep-sea fishing programme. Tuna is a very popular delicious fish and is called as the "chicken of the sea". Past surveys indicate that this species is available in plenty in the Indian Ocean area, particularly near Laccadive and Maladive islands. At present, out of 1.5 lakh tonnes of tuna caught in the Indian Ocean India's share is hardly 5,000 tonnes and rest is fished by foreign trawlers. The Central Government is said to be prepared to permit foreign collaborations for tuna fishing. The State Government plans to exploit the situation and extend its marine resources keeping in view the upcoming fishing harbours at Malpe and Karwar.

Therefore, one need not have any doubt whatsoever as to the availability of inexhaustable marine life in the district, both pelagic and demersal. The real challenge is not in the lack of such resources, but in the capacity to harness them.

However, at present the problem is whether even the existing and long tested pelagic species will soon be extinct due to the threat of the industrial and other pollution all along the district's coast.

Pollution Threat:

The district is fast developing into an industrial area.

Many industrial units are getting located all along the coast between Mangalore and Udupi, and more particularly between Panambur and Surathkal. The newly inaugurated all-weather harbour at Panambur has stimulated such industrial expansion. The Mangalore Chemicals and Fertilizers, Ltd., has started production. The mini Canara Steel plant is already functioning. Recently, many more units have announced their intended location in south kanara district, which provides many infrastructural facilities. Such industrialization has to be considered as a boon. However, in the particular context of the marine fishery industry of the district, doubts are raised as to whether the impending industrialisation would turn out to be a bane.

Recently, the leaders of fishery industry have warned the government of the possible crippling effects on their industry due to pollution threat from the Mangalore Chemicals and Fertilisers. They are apprehensive of the disposal of MCF's chemical waste into the sea. As has been seen, the coast between Malpe and Mangalore is the richest part of district's fisheries, where prized prawns breed. Various research studies in the past have proved that even extremely low concentration of insecticides with their cumulative effects may be lethal to shrimps. The deadly effects of chemical discharges into sea have been practically experienced in Binaga, Karwar, where a caustic soda factory is located. The photographs of floating dead fishes have been published in the leading newspapers. The Institute of Oceanography has been conducting the pollution effects and has confirmed the mutilating impacts on certain fisheries in the west coast. Under these circumstances the apprehension of the fishermen is not unjustified.

In a recent clarification MCF have tried to disprove such fears. They contend that the waste-purification plant set up at a cost of Rs.450 lakhs would disharm the disposable wastes. Such industrial waste of the factory would be diluted 50 times and would be discharged 4 kms away in the sea.

Consequent on the protests by the fishery industry, the proposed location of Rs.30 crores Karnataka Phosphatic Fertilisers is said to be shifted 10 to 15 kms interior from the coast, instead of earlier plan of near Panambur.

Apart from the pollution threat from the industrial waste one cannot belittle the threat from the all-weather port of Panambur itself. Firstly, the movement of the big ships all round the year into and from the harbour, apart from disturbing the marine life, would cause the oil pollution. Secondly, the building up of the oil storage capacity in the harbour with an oil jetty to facilitate oil tankers, would add to such oil pollution in substantial way. Even the past study of Institute of Oceanography have revealed that at a few beaches at high-tide level sand was found mixed with an oily substance, probably caused by the washing ashore of a thin oil film generally present near harbours like Bombay, Panaji and Karwar. At Marmugao occurrence of degraded oil had been seen many times. No one seems to have paid much attention to this inevitable side-effect of the New Mangalore Harbour, located at Panambur.

Another type of pollution threat to the traditional coastal fishing is the extensive use of chemical fertilisers by the agriculturists along the west-flowing rivers. The excess of irrigation waters flowing back into rivers carry with them high chemical contents. Ultimately this chemically affected water flows into the estuaries where the prawns breed. Prawns and other marine fishes are susceptible to heavy mortality on this account.

The pollution is a double edged blade. It not only affects the life of fishes, but also could endanger the consumers of such contaminated fishes.

No doubt, in a developing economy problems like these have to be taken in normal strides of development. However, all attempts should be made to avoid the damage that could be caused by the disposal of such wastes into oceanic waters. The National Environmental Engineering Research Institute, Nagpur, has recently come out with a research report on inexpensive method of treating the effluents, especially the sewerage. Similar methods could be devised for the industrial wastes which are to be discharged into sea.

Also a continuous survey has to be carried out about the pollution, its extent, type and causes and the fishermen of the affected area have to be warned well in advance. In other words, to avoid destruction of fishery industry, all measures have to be undertaken.

However, the real solution to such problems lies in the diversification of fishing into deep-sea and lessening the concentration on the current practice of shallow water and shore fishing.

The Proposed Control on Fishing Area:

For the past one year, a proposal has been in the air to bring the marine fishing under greater organisational control. The proposal is to enact a comprehensive law covering many facts of marine fishing. One of the steps is said to be to regulate the marine fishing by means of licences, leasing of fishing grounds and control of the back water fishing. It would mean stratification of fishing areas, which in effect would be like Land Holdings Act.

The proposed measure has come under severe criticism and fishermen of the coast have strongly opposed the move. Their contention is that marine fishing, unlike its counterpart in inland fishing or other industry like agriculture, is highly uncertain in the yield. Apart from this, certain methods of fishing like Rampani, sometimes move the fishermen as far away as 8 to 16 kilometres from the place where they originally started, depending upon the movements of the shoals, the velocity, direction of winds and the movements of the waves. The taluk-wise landings analysis earlier has also clearly indicated the erratic trends in the landings from centre to centre each year. Under these circumstances, the practicality of such a control over the fishing area becomes doubtful.

However, even the fishermen agree that there is a great need and scope to regulate the starting of fishing season, (as is being done at present in Kerala coast), and the regulation of use of types of gears and methods of fishing. They also agree that due to profitability and greed, of late, there has been use of harmful methods of fishing, particularly by fishermen coming from other areas of the country who are not governed by the social laws of the local fishermen.

The proposed enactment, which is not made public, has been in the news off and on. The latest version of the news is that due to the conserted opposition from the fishing community and due to hectic lobbying, it might not be pursued.

Chapter III

MECHANISED AND TRADITIONAL FISHING

Mechanised Fishing

First demonstration of mechanised fishing by F.A.O. expert, Mr. Illugason was held in the year 1957 at Mangalore. And the first mechanised boat was constructed at Mangalore Yard in the year 1958 by another F.A.O. expert Mr. Zenier. Since then mechanisation of fishing in the district has been quite significant as can be seen from the total number of mechanised boats and the rate at which the number of such boats has increased in the recent past. South kanara accounts for more than 75 per cent of the total number of mechanised boats in the state. The only other coastal district of north kanara, which is just an extension of south kanara coast northwards accounts for remaining 25 per cent of such boats. At the very initial stages of mechanisation some scepticism was felt as to the suitability of mechanised boats along the south kanara coast. In a Symposia conducted by the South Kanara District Development and Welfare Board, Mangalore, in November 1958, while discussing on the fishery industry in New Mysore State, it was pointed out that fishing by mechanised boats along south kanara would not be feasible or profitable when reckoned with investments to be made. Some experienced people in fishing had felt that mechanisation was suitable to cold climatic countries where fishes grew bigger in size and were more plentiful. Despite such initial scepticism, the number of mechanised boats have increased in the district. Table 13 shows the trend in the growth of mechanised boats in the district since 1958-59.

Table 13: Trend in the Growth of Mechanised Boats since 1958-59:

Year	Number	Year	Number
		1965-66	169
		1966-67	217
		1967-68	300
1958-59	9	1968-69	368
1959-60	21	1969-70	487
1960-61	38	1970-71	583
1961-62	48	1971-72	753
1962-63	57	1972-73	773
1963-64	81	1973-74	793
1964-65	128	1974-75	864

Source: Assistant Director of Fisheries (C & T), Mangalore.

It is seen from Table 13 that the total number of mechanised boats has shown an increase from a small number of 9 in the year 1958-59 to 864 in 1974-75. The growth has been rather slow between 1958-59 and 1964-65. On the other hand, between 1965-66 and 1969-70, the growth has been about 288 per cent. In the next five year growth has been 177 per cent. In a nutshell real mechanisation has caught up during the ten years period of 1965-66 to 1974-75 with over 600 per cent increase in the number of mechanised boats in the district. Various financing schemes, such as the Agricultural Finance Corporation Scheme, State Bank of Mysore Scheme and the State Government's Subsidy Scheme[1] have been responsible for this phenomenal increase in the number of mechanised boats. Even the private commercial banks have played an important role in financing mechanised boat purchases. Financing aspect of the mechanised boats is being dealt with in greater detail in a separate chapter on overall financing of marine fishery industry in the district. Greater export orientation of some of the marine products, especially the Prawns, has provided the much required commercial base for the operation and acquisition of mechanised boats. It need not be mentioned that the enterprising and adoptive nature of fishermen have also been substantially responsible for the increase in mechanised fishing in this part of the state's coast. In 1975, there were 18 boat building yards in the district. Substantial number of these yards have the necessary facilities to build the mechanised boats required by the fishermen in the district. The boat building yards of the South Kanara District Fish Marketing Federation and the Karnataka Fisheries Development Corporation have not only built a number of mechanised boats in the past but are also capable of building bigger boats than they are building at present.

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[1] A total subsidy of about Rs.37.78 lakhs has been disbursed to fishermen for the purchase and construction of boats (436 engines) between 1962-75.

The State Government has proposals on hand to mechanise the existing more than 3,000 country boats and crafts with suitable engines. When, and if such proposals are implemented the mechanisation programme in the district's coast would be complete.

The upcoming fishing harbour at Malpe at an estimated cost of Rs.2.17 crores, with cent per cent Central Government aid will further boost the mechanised fishing in the district. It was UNDP survey team which had recommended Malpe as an ideal fishing harbour. It is expected to be ready for use by October 1978. This harbour will provide necessary facilities to a fleet of 225 large vessels of drift ranging between 14 metres and 28 metres. The area around the harbour is to be developed into Fishing Industrial Estate Complex. This programme is expected to boost the modernisation of entire marine fishing industry in the district.

Another proposal, which is still in the initial stages of planning, is to convert the existing Old Mangalore Port, which has lost much of its importance since the opening of all-weather harbour at Panambur into another fishing harbour on the lines of Malpe fishing harbour complex.

With such programmes for the future, the district's marine fishery industry seems to be well set for the take off in the field of mechanised fishing. However, the experiences of the recent past in mechanised fishing has to be kept uppermost in mind while planning for the future. The share of mechanised boats in the landings of marine products, the operational characteristics and the practical problems of the mechanised boat owners, when analysed would give a correct perspective to the future mechanisation of fishing in the coast.

Share of Mechanised Fishing:

One of the main purposes of mechanisation of fishing is to exploit greater quantity of marine fishery resources. Hence, it will be imperative to know as to how much the increasing number of mechanised boats in the district have contributed to the total landings over a given period. Table 14 gives the shares of mechanised and the non-mechanised boats in the total landings for the ten years period of 1965-66 to 1974-75, At the outset, it should be pointed out that the data available on the share of mechanised boats in the total landings have some limitations. Some of these limitations, such as operational details of mechanised boats shall be considered elsewhere in the future.

Table 14 reveals that the landings of mechanised boats have been far less as compared with those of non-mechanised traditional boats. Between 1965-66 and 1969-70, the average share of mechanised boats in total marine fish landings was only 14 per cent as against the average of 86 per cent of the non-mechanised boats. However, during the second five year of the study, i.e., 1970-71 to 1974-75, the performance of mechanised boats seems to have improved as their average share in total landings has gone up from 14 per cent to 25 per cent. But even this improved performance does not seem to justify the huge capital invested in mechanised boats, which is around Rs.80 crores in 1975. This sum is apart from, more or less, similar investment in the suitable fishing gears for these boats.

Table 14: Shares of Mechanised and Non-Mechanised Boats in Total Marine Products Landings, 1965-66 to 1974-75:

(Quantity in tonnes).

Year	Mechanised boats	Per cent to total	Non-mechanised boats	Per cent to total	Total
1965-66	3,000	5.36	53,000	94.64	56,000
1966-67	5,000	5.95	79,000	94.04	84,000
1967-68	9,000	25.00	27,000	75.00	36,000
1968-69	12,000	26.67	33,000	73.33	45,000
1969-70	4,000	7.41	50,000	92.59	54,000
1970-71	8,800	13.25	57,600	86.74	66,400
1971-72	11,600	22.88	39,100	77.12	50,700
1972-73	13,400	34.63	25,300	65.37	38,700
1973-74	21,100	38.02	34,400	61.98	55,500
1974-75	10,200	17.52	48,000	82.48	58,200

Data Source: Assistant Director of Fisheries, Mangalore.

It would be misleading if the performance of mechanised boats is evaluated purely from the point of view of

SHARES OF MECHANISED AND NON-MECHANISED BOATS IN TOTAL LANDING

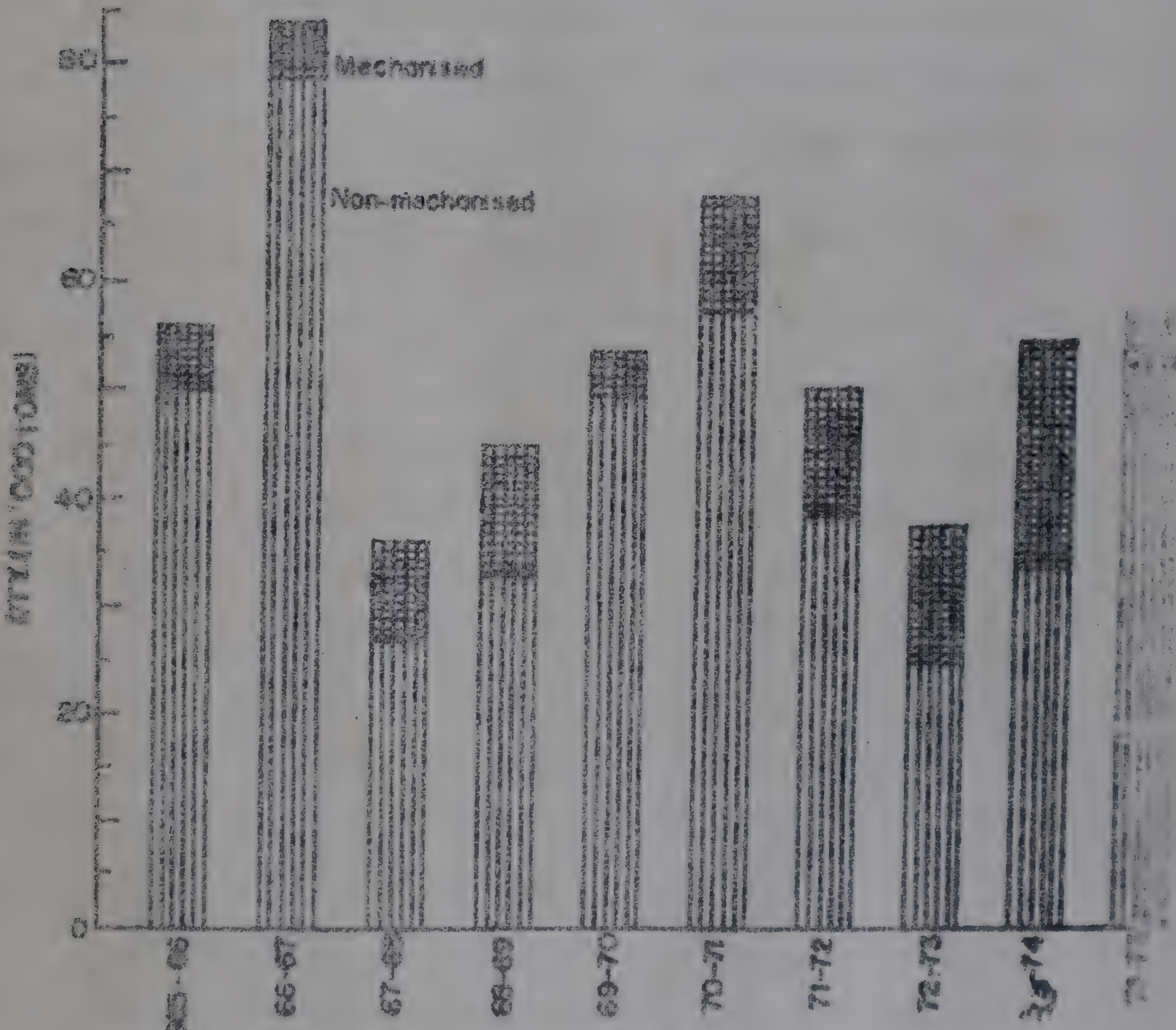


FIG.3

their share in total marine fish landings. If the mechanised boats' share in the total value of landings is considered, then the picture would be quite different. In 1974-75, for example, even though the mechanised boats share in the total quantity landed was only around 17 per cent, the share in the total **value of marine** products landed was about 30 per cent. For the year 1973-74, this share was as high as 65 per cent, even though the share in the total quantity was only about 38 per cent. It is because of the fact that in the district mechanised fishing is analogous to Prawn fishing. For example, in 1974-75, out of 5,000 tonnes of prawns landings as much as 3,500 tonnes were accounted by the mechanised boats. This amounts to 70 per cent of the total prawn landings. Similarly, in the year 1973-74, out of 11,224 tonnes of prawns landed, 10,066 tonnes were hauled up by the mechanised boats. This is 90 per cent of total prawn landings for that year. The situation is not much different during the past years. There has been a linear relationship between the growth of the number of mechanised boats and that of the growth in the prawn exports from the district. Therefore, it would be more correct to call the mechanisation trend as "mechanisation of prawn fishing" rather than to generalise it as "mechanised fishing". The reason for such peculiarly special feature is the high unit price that the prawns fetch especially with comparatively small size which enables greater haulage. It is to be remembered here that mechanised fishing is a commercial proposition, is cost oriented and monetized venture unlike the traditional boat fishing. The mechanised boats involve huge capital outlay on which the interest goes on piling up. Secondly, once the boat is taken into the sea, the operational costs start accumulating. It is said that the mechanised boat operators in this part of the coast actually use the machine power even while fishing i.e. while trawling, unlike some of their counterparts elsewhere in the country for whom the machine power is only meant for taking the boat from and to the coast. Thus the overall operation costs of the mechanised boats are high. Added to this, the concept of monetized fishing is only of recent growth for the fishermen. Consequently, the mechanised boat operators mainly concentrate on prawn fishing. Endeavours to fish anything other than prawns is considered very risky and not worthwhile. Mechanised boats of the district go as far south as Cannanore in Kerala and Karwar and Goa in the north in search of or in the "hunt" for these precious prawns. The fishermen of the district have named the prawns as "Gold of the ocean", (Kadala Bangara) and they cannot settle for anything less than this 'gold'. Only as an exception, the mechanised boats fish silver bellies, ribbon fish, cat fish, sciaenids and some miscellaneous varieties. Like prawns, these varieties fetch high prices, but they are not abundant.

Apart from pure monetary considerations for such concentration of mechanised boats in prawn fishing there are some practical problems. Now it is realised that the mechanised boats of the size of 30' and 32' are not suitable for fishing requirements and conditions of the region. Their operation has been found uneconomical. And nearly 96 per cent of 864 mechanised boats in the district at present belong to these categories. In the enthusiasm to mechanise fishing not much attention was paid to design requirements of the boats. Thus, the mechanisation of fishing seems to have started on the wrong foot. (However, this phenomenon is not peculiar to this district, but is common with all India pattern). It is to be noted that during 1974-75, out of about 34,400 tonnes of oil sardines and of about 2,600 tonnes of mackerel, two species for which the district's coast is known, the share of mechanised boats was nil.

The current thinking of Government of India, therefore, is to encourage the fishermen to opt for bigger boats. But, it is doubtful whether such recommendations would be practicable. It would not be wrong if it is felt that such a step would only aggravate the situation, especially in the light of the experiences of units like the Karnataka Fisheries Development Corporation with bigger boats. KFDC has two 57' boats and their operation is considered to be a drag on its finances. The recommendation for bigger boats could theoretically solve the design defect but would open up pandoras box as far as practical problems are concerned. Such vessels are mostly suitable for deep-sea fishing, and this area has not yet been well tested even by the survey units and the Fisheries Development Corporation. Therefore, this problem requires a well thought out and well tested solution and not any solution across the table. Erring once is bad enough, but replacing one mistake with another greater mistake would be disastrous.

Operational Characteristic of Mechanised Boats:

Another feature of mechanised boats in the district deserves serious attention both of economists and that of planners and administrators. As per the records the district has as many as 864 mechanised boats. And it is natural to assume that at least 95 per cent of them are in the actual field of fishing operations. However, recent data collected on the daily operations of these boats reveal some surprising facts. Table 15 provides the daily number of mechanised boats operated during the four months of October, November, December 1975 and January 1976.

The months of October, November, December and January are certainly not slack fishing season. Even then, as can be seen from Table 15, the highest number of boats operated on any single day in these four months happens to be only 430 (13th January 1976), which is little less than 50 per cent of the total mechanised boat fleet in the district. It is only in the month of January that substantial number of boats have gone out for fishing operations. The average of this month being 351 mechanised boats. However, the averages for

Table 15: Daily Sheet of Number of Mechanised Boats operated in South Kanara during October, November, December 1975 and January 1976.

Date	Total number of Mechanised Boats operated			
	October 1975	November 1975	December 1975	January 1976
1	169	105	65	232
2	188	121	68	206
3	115	61	66	282
4	136	5	77	290
5	77	140	116	280
6	69	147	296	274
7	46	132	284	348
8	35	165	186	362
9	23	171	154	380
10	159	140	143	403
11	89	73	186	364
12	40	50	256	418
13	125	61	302	430
14	260	80	309	291
15	269	87	331	392
16	320	79	91	390
17	129	93	245	383
18	229	89	241	352
19	32	104	335	338
20	21	83	273	426
21	78	56	271	425
22	87	60	262	386
23	146	101	316	353
24	84	95	330	375
25	76	243	296	368
26	62	255	303	309
27	96	110	310	350
28	128	105	351	317
29	83	124	328	300
30	74	319	225	335
31	48	...	270	417
Month's average	115	125	224	351

Source: Assistant Director of Fisheries, Mangalore.

October, November and December 1975 have been 115, 125 and 224 respectively. Then the question arises as to what the remaining large number of mechanised boats in the district are doing?

Only a small percentage of such boats could be accounted by their trips to neighbouring district/states. This still leaves more than 50 per cent of the fleet unaccounted. It is to be assumed that they are idle. And this requires a deeper and thorough analysis. Such a large percentage of idling of such mechanised boats is only symptoms of a deep malady with which the mechanised fishing is suffering from.

Partnership Feuds:

An interview with a mechanised boat owner, Shri Kamalaksha Amin, provided some insight into the mechanised boat ownership problems. Shri Kamalaksha Amin himself has come up a hard way in the last 15 years and by now has not only paid off the loan on his MY boat but has also acquired another mechanised boat through bank loan. He pointed out that partnership constituted the basic pre-requisite for the grant of loans to buy the mechanised boats. This in itself is not wrong, he admitted, as the authorities who provide loans of more than a lakh of rupees certainly have the right to demand for a better guarantee for their funds. But the basic defect was in the way such partners were found. Mostly it happened that each of the partners belonged to a different village and hardly had any knowledge of each other. Such choice of partners was supposed to give a better regional balance to the distribution of funds and the mechanised boats. However,good the intention might have been, in practical field it has become a bone of contention in the proper use of the boats. Shri Amin pointed out that the fishing requires setting out for sea very early in the morning. When the partners were from different villages coordination of timings was no easy task. This was said to be the beginning of discord between the partners which gradually permeated into areas as to who should go for fishing and who should not, which partner should get what share of the value realised, etc. In brief, the cooperation which is the corner stone of marine fishing was lacking amongst these partners. In some cases, more dynamic partner/partners took over the boat and paid off the other erring partner/partners to salvage the situation. Shri Amin's was one such case.

Future Deep Sea Fishing:

The State Government is very much interested in the diversification of mechanised fishing and in encouraging deep sea fishing. Therefore, the mechanised fishing has good prospects in the district. However, as it has been already seen the present fleet of 864 mechanised boats, apart from its incapacity to carry bulkier fishes, it is not suitable for deep sea fishing. These boats can stay in the sea only for 10-12 hours, as they are neither equipped with adequate crew cabin nor adequate storage capacity. They have to rush back to the shores within such time, irrespective of whether they have been able to catch the fishes or not. But, neither can they any longer continue to be purely mechanised prawn fishing boats. Writing them off and to find entirely new, more suitable boats has to be ruled out due to the finance involved. However, the present boats can be tagged on to bigger "Mother Ships" in the deep sea fishing. These mother ships should act as home, storage point and temporary 'shore' for these small boats. This seems to be the only possible solution in diversifying the fishing operations of present mechanised fleet. The technical feasibility of this proposal may be examined further.

Apart from this, the future mechanised boat **building** should be immediately put under control so as to construct only those boats which will be suitable to future fishing requirements of the district.

The government's recent pronouncement to procure 43½' "Purse-Seine" type of boats capable of purse-seine operations is a step in the right direction. It is proposed to allot these boats to groups of fishermen with ten members each. It is only to be assumed that past mistakes would be avoided in future selection of partners.

Traditional Fishing

It has been already seen that the traditional fishing in the district contimues to play an important role in the total landings of the marine fishes in the district. The average landings for the five years of 1970-71 to 1974-75 by the traditional methods has been about 75 per cent. The entire fishing of oil sardines and mackerels, the major species of the district's coast is done by the traditional fishing methods. In 1974-75, there were 1,029 country boats and 2,731 canoes (dugout boats) with which the traditional fishing has been carried on. These fishing crafts consist, almost entirely, of small open boats propelled by sail or oars. The canoes are carved out of a single tree trunk. Their sizes range from the small ones, 20' to 25' in length, used for fishing mostly in estuaries to large Kairampani boat nearly 40' long and used for the operation of the small shore seine. Intermediate sizes are used for the operation of other nets like Patte Bale, Kantha Bale, Beppu, Beesu Bale, etc. The boats, other than the dug out canoes, are mostly "Padavu" used in the Rampani. These are plank-built boats with an outrigger consisting of two booms and one float.

Even though the traditional method of fishing looks "crude" in comparison with the modern mechanised fishing, one has to appreciate its technical perfection and the specialisation. It is only that traditional method has not been in a position to cope with the changing technology. It is already observed that different sized and different types of boats are used in different fishing methods under traditional fishing. It is also to be noted that different nets are used for different species of fishes and for different seasons. However, it is the Rampani fishing that is the speciality of south kanara coast.

Rampani Fishing Method:

The Rampani fishing belongs to shore seine type. It is said that this method was introduced here from Goa, some 75 years ago. It is only said that introduction of this fishing into south kanara was due to the initiative of a Catholic priest called Father Rampan or Rampani. In 1974-75, there were 93 big and 4,712 small Rampani nets in the district. The total value of these nets has been estimated at about Rs.1,323 lakhs, which is little over 50 per cent of the total wealth of the fishermen in the district, including the value of the mechanised boats. And naturally, Rampani fishing constitute the backbone of the traditional fishing in the district.

Under this system, there is pooling of equipment and manpower. Rampanis are rightly called as unregistered co-operative fishing units. Membership is normally between 40 - 50 but sometimes could be as high as 100 - 150 persons. Each member contributes a few pieces of net each. Each unit has a 'Thandel', who is responsible for the fishing and an accountant - 'Shanubhogue' who maintains the accounts. The proceeds of the fishing operations are pooled together and after deducting the expenses, they share equitably. The accounts are generally settled only at the end of a season and until then, the members are given advances to meet their personal expenditure. It is not merely the organisational structure that makes the Rampani a unique one, it is also its method of operation.

Rampani is the largest of all the nets used on this coast and is made of hemp and cotton. It may be as much as a mile or more in length, and is made by joining together 500 to 700 pieces of webbing. The depth of the net increases gradually from the outer end of each wing (where it is about 6') to 25' or 30' in the centre. The mesh conversely decreases from about 6 cms (stretched) at the outer end to 2.3 cms (stretched) in the central region. The head rope is provided with wooden floats and the ground rope is weighted with the stones or lead pieces. At the free ends of the net, the head and foot ropes are often fastened to the ends of a short, stout pole. A hauling rope of coir, about 200 to 300 fathoms long and 4.6 cms to 6.9 cms thick is attached by a short bridle to the pole at each end of the net. The Rampani net is shot only when a shoal of fish is noticed coming close enough to the shore to justify an attempt to surround it with net. For this purpose, look outs are stationed at suitable points of vintage.

The net is loaded on the 'Padavu' boat. When a shoal is sighted, the boat is launched leaving one end of the hauling rope on the beach. The boat is rowed fast and away from the shore, paying out the net as it goes and the shoal is surrounded in a large semi-circle. The remaining part of the net is then laid towards the shore and the other hauling rope is taken, and the hauling begins. A few small auxiliary canoes tend the head rope to prevent it from sinking and letting the fish escape. The operation may last a few hours. As the net is hauled, the arc of the circle becomes smaller and smaller and the fish are gathered in the central section of the net. The water between the net and the shore then becomes seething mass of fish which are bailed out into baskets or into canoes according to the size of the catch. Sometimes, the catch is so large that a part of it is left in the sea in the enclosure of the net, to be bailed out the next day. The net requires 60 to 80 people to operate. At a time as much as 10 tonnes of fish may be landed in a haul. The entire operation is the best example of cooperation. The rhythm with which the whole operation is carried out is sight worth watching.

For small shoals or when the Rampani cannot be operated on account of adverse weather or other circumstances, the smaller Rampani - known as "Kairampani" - is operated.

There are a variety of nets used in the coast. Within

Rampani there are broadly three types: (i) Mandu (which are again two types), (ii) Hallibale and the (iii) Dollubale. These nets are used during October - March season. The small Rampani, i.e., Kairampani has two types of nets - (i) Mandu and (ii) Hallibale. These nets are used only during August - or September months. Then there are other nets: Pattebale (used in the months of May - June), Chalabale (April - May), Kanthabale, Beesuvabale (July - August), Vodu-Bale (i.e., night gilnet - September - May), Maribale and the Bhutaibale (May - June). The technical details such as the length and width of each net, length and width of each mesh, number of meshes in length, number of meshes in width and the total number of meshes in each net are provided in Table 16.

Traditional fishing will continue to play its own role in the future. It would be impossible to provide everyone of the fishermen in the district with a mechanised boat. Financially it would be impracticable. Traditional fishing is not all bad, it has its own finer aspects. What is required is to try to enable the traditional fishermen to learn more modern and scientific techniques. These fishermen are not laymen, they have their own fund of knowledge. For them the sea is their own "open book" and they are capable of reading it and understand it well. They have adopted the new nylon nets without any hesitation and found it more durable and versatile than the cotton and coir nets they were using earlier. Similarly, they have switched over to plastic or

Table 16: Technical details of Some Nets used in Traditional Fishing.

Sl. No.	Types of nets	Seasons in which used	Length and width of net in metres	Length and width of each mesh	No. of meshes in length	No. of meshes in width.	Total No. of meshes in net
1.	Big Rampani						
	(a) Mandu 3+3 (i) (ii)	October-March	$13\frac{1}{2}$M; $1\frac{3}{4}$M	1 cm	588	100	58,800
	(b) Halli Bale 5+5	"	$13\frac{1}{4}$M; 6 M	2.3 cms	260	300	78,000
	(c) Dollu Bale 1+1	"	9 M; 2 M	1 cm	468	150	70,200
2.	Small Rampani						
	(a) Mandu 1	August or Sept. only	$10\frac{3}{4}$M; $1\frac{3}{4}$M	1.2 cms	462	200	92,400
	(b) Halli Bale 2	"	9M; 2M	1.2 cms	210	300	63,000
3.	Patte Bale	May - June	$12\frac{1}{2}$M; 16M	3 cms	53	800	42,400
4.	Chala Bale	April - May	$12\frac{1}{4}$M; $13\frac{1}{2}$M	2 cms	60	900	54,000
5.	Kantha Bale (Variable in mesh from place to place)	...	$3\frac{1}{4}$M; 16 M	3 cms	53	1,000	53,000
6.	Vodu Bale (Several types)	Sept. - May	6 M; 45 M	4.6 cms	100	400	4,000
7.	Butai Bale (Several types)	May - June	$2\frac{1}{2}$M; $13\frac{1}{2}$M	2 cms	65	900	58,500

Source: Fishermen Survey under the Project.

aluminium floats from the traditional wooden floats. With concerted efforts on the part of the Government and the institutions imparting education in fisheries, traditional fishermen could be coaxed to use improved methods of fishing. That they are capable of adopting to new technology is also exemplified by the way many of their younger generation have taken to mechanised boats in the district. If Father Rampan could make them to adopt Rampani, which in only 75 years has become so popular, then the present generation of fishermen will certainly be more adoptive to new techniques of fishing.

Chapter IV

FISHERMEN

Marine fishing, unlike its counterpart in inland fishing, is not only highly hazardous job but also requires special skills and indomitable courage. The very thought of unfathomable depths of the deep seas and the sight of huge waves could make an ordinary man shiver. The marine fishing is a highly risky affair and the risk is increased many folds by the simple but crude looking fishing crafts with hardly any amenities, not even that of adequate drinking water. Hence, it is but natural that some insight into the people, who undertake such hazardous operations with such an ease and for whom fishing is a way of life rather than adventure, cannot be considered out of place. Fishermen of the sea are the sheet anchor of the marine fishery industry.

There are 85 fishery villages on the South Kanara coast. The names of these villages are provided in Appendix II Taluk-wise, Mangalore taluk has 24 of these villages, Udupi taluk has 38 villages and the Coondapur taluk as 23 villages. As per 1971 Census the fishermen population of the district was 60,000. Out of this, nearly 15,365 were active adults engaged in fishing. Among such active adult fishermen 12,910 were full-time, 2,225 were part-time and 230 were seasonal fishermen. There were 10,012 women and 1,536 men engaged in the marketing of fish.

The fishing population consists of Mogaveeras, Bovies, Kharvis, Harikanthas, Daljees and Moplas. The Mogaveeras mostly speak Tulu and the Moplas speak Malayalam. Kharvis and Daljees speak Konkani and Harikanthas and other fisherfolk in northern part of Udupi taluk and in Coondapur taluk speak Kannada.

One important characteristic feature of the fisherfolk is the high degree of co-operation. Probably, it is the basic nature of marine fishery, which requires high degree of interdependence on high seas both for successful fishing and for survival that has over the ages, made this high degree of co-operation an inseparable social trait of these people. There are 'fishermen courts' - called 'Sabha' - in each fishery village. All the endeavours normally start from there and all the problems find their end solution there alone.

In recent days a considerable number of people from this community has got settled in large cities like Bombay and have got good jobs in Banks, Insurance and other Companies.

There are at least three known journals - Mogaveera, Matsya Loka, Meenugara - published by the fisherfolk of the district. These journals help them to voice their grievances to the public and also provide their own talented people opportunities to make their capabilities known to the general public. Most of the articles, whether pieces of literary works or others, are normally based on the marine life.

There is a state-level organization of the fishermen - All Karnataka Fishermen Federation - which meets once in a while in the year to look into the problems of the fishermen in the state. In its meeting held on 13-12-1974, as many as 29 resolutions were passed covering, fishing area restriction proposals, the pollution problems, working of the societies as also the housing problems of the fishermen in general.

The Fisheries Department has maintained statistical data about the wealth of fishermen in the district. The data are provided in Table 17. It can be seen from the Table that the total wealth of fisherfolk of the district, in terms of value of fisheries equipments held by them, has increased from Rs.1,818.65 lakhs in 1970-71 to Rs.2,304.79 lakhs in 1974-75. The share of mechanised boats among the boats has been predominant. Among nets Rampani nets have the highest place in the value. The total value of Rampani nets alone constitutes little over 50 per cent of the total wealth of fishermen in 1974-75.

Socio-Economic Survey:

With a view to having a comprehensive knowledge of the socio-economic set up and pattern of fishermen in the district a survey was undertaken. The survey involved a detailed questionnaire administered personally at random in various fishery villages. The questionnaire tried to probe

Table 17: Wealth of Fishermen in South Kanara - 1970-71 to 1974-75.

(Numbers in units; Value in lakh rupees)

Sl. No.	Item	1970-71		1971-72		1972-73		1973-74		1974-75	
		Number	Value Rs.	Number	Value Rs.	Number	Value Rs.	Number	Value Rs.	Number	Value Rs.
	PART I										
1.	Mechanised boats	583	466.40	753	602.40	773	618.40	793	640.40	864	729.15
2.	Boats	951	57.06	962	63.88	987	79.90	1,013	97.04	1,029	110.78
3.	Cannos (Dugout boats)	1,698	5.09	1,782	5.39	1,896	5.84	2,453	8.16	2,731	9.41
	Total	3,232	528.55	3,497	671.67	3,656	704.14	4,259	745.60	4,624	849.34
	PART II										
1.	Drag Net	1,939	58.17	1,943	58.29	1,957	58.74	1,972	59.24	2,959	63.28
2.	Gill Net	3,993	19.96	4,427	21.97	4,496	24.20	4,914	26.58	4,982	27.84
3.	Trawl Net	1,106	8.85	1,177	8.96	1,133	9.13	1,748	17.13	2,456	26.33
4.	Cast Net	2,804	8.97	2,972	9.60	2,997	9.71	3,117	10.28	3,191	10.62
5.	Big Rampani	89	62.30	90	63.00	92	64.60	92	64.60	93	65.50
6.	Rampani Nets	4,512	1,128.00	4,532	1,133.00	4,568	1,241.00	4,601	1,250.90	4,712	1,257.55
7.	Others	3,853	3.85	3,964	3.99	4,084	4.14	4,117	4.19	4,184	4.33
	Total	18,296	1,290.10	19,105	1,298.81	19,337	1,411.52	20,461	1,432.92	22,577	1,455.45
	Grand Total	..	1,818.65	..	1,970.48	..	2,115.66	..	2,178.52	22,577	2,304.79

Source: Assistant Director of Fisheries, Mangalore.

into many facets of fishermen's living and working conditions. This six pages questionnaire was broadly categoried into 5 Blocks: Block 1 - Household characteristics; Block 2 - Working particulars; Block 3 - Sales pattern; Block 4 - Fishermen co-operatives and Block 5 - General information. The intention was to cover a sample of 500 fishermen all along the coast. But only a sample of 483 fishermen could be covered despite best efforts. Two factors very badly hindered the survey work. Firstly, the fishermen as a community have a highly conservative and a sort of secretive attitude towards outside probings into their life. Secondly, there is always a suspicion about the ultimate purpose of such studies. The field staff had to explain the purpose of the study and assure them that the information would not be used against their interests. Such limitations have to be kept in mind while evaluating the findings.

Some parts of the survey findings have been incorporated in appropriate chapters. Herein only some major findings would be listed.

The sample of 483 fishermen belonged to 32 fishery villages in the coast: 221 persons from 12 villages of Mangalore taluk, 156 persons from 9 villages of Udupi taluk, 106 persons from 11 villages of Coondapur taluk. Of the 483 persons, 186 belonged to mechanised boats, 88 to country boats and the remaining 209 to Rampani groups. Thus, the sample was quite representative of regional and occupational characteristics.

The survey revealed that education up to high school is common among the fishermen. College education is not popular. Only five persons had the college education and they were in the mechanised boats. Only about 10 per cent of the persons surveyed did not have any education at all. The schools maintained by the Fisheries Department seem to be helpful in imparting education. Higher education, i.e., college and above, was considered to be either not essential for or hindrance to the fishing profession.

A little over 50 per cent of the group belonging to mechanised boats had undergone specialised training in fishing, whereas in other groups no such training had been received. Only stray cases of fishermen trained for mechanised boats were found to be working in country boats or Rampani group. There was some recognisable willingness on the part of mechanised boat group and the Rampani group to undergo some training in fishing if such opportunities were provided to them. On the contrary, there was not much enthusiasm amongst the country boat group for such a training.

Joint Family continues to be main form of family life, particularly amongst the mechanised and Rampani groups, whereas single family system seems to be popular amongst the country boat group. Fishing constitutes the main occupation of the members of the family, joint or unitary. Size of the family is rather large. Families with less than five members are fewer than those with between 5 - 10 members, which is predominant, or with more than 10 members.

Even though the predominant fishing communities are Mogaveera, Bovees and Daljees, instances of people from other communities, such as, Malayali, Christians, Muslims, Bhillavas, Poojari, Mulya were also found engaged in fishing, though their number is small. The fishermen here have nothing against their counterparts from neighbouring areas, such as Kerala, Maharashtra or even from Tamil Nadu, coming to this coast for fishing. The attitude is - "the whole sea is there as god's gift, let everyone get his share of luck" - but they are very much against the harmful techniques being adopted by such "guests" in greed to get something or anything. It is opined that such methods disturb the normal shoals and adversely affect the fishing.

The fishing season consists of eight months. During peak season fishermen, irrespective of the group, i.e., mechanised or others, put in 8 to 14 hours of labour at sea. On such occasions more than single trips are made. The mechanised boat group goes as far away as 75 kms in search of fish, whereas the Rampani group covers only 35 - 40 kms. The country boats cannot make more than 5 kms.

Interesting feature of the mechanised boat group is that the owners "employ" other fishermen to fish on their behalf. It is a sort of hiring out the boat. This practice is quite significant. The payment of wages are mostly in the form of shares in the landings. Where such share is not given the wages range between Rs.5 to Rs.25 per day. Self financing of mechanised boat is not observed. It is mostly institutionally financed. Consequently, partnership is popular form of ownership and usually there are 4 to 5 partners to each such boat. In contrast to this, individual ownership is popular in the country boats. Partnership is not very uncommon, though in the case of Rampani, membership is mostly by offering nets and ropes, which sometimes are financed from Rampani Funds or outside loans. Membership by offering labour is also found.

The earlier data on the price and the value trends would indicate that the incomes of fishermen are highly unstable. However, the annual earnings for the survey year of 1974-75 was stated Rs.1,000 to Rs.1,200 by all the three categories, viz., mechanised, Rampani group and the country boat fishermen. This is rather strange feature. In an earlier study of Bengare village (in 1968) the annual mean net income of a mechanised boat fisherman was placed at Rs.1,593-35 and that of other fisherman at Rs.907-60. If at all, there should have been an upward change of such income, in conformity with such a change in the fishery industry as a whole, and not other way round. However, the enquiry on income, almost everywhere, was parried over and answers were vague and possibly underestimated.

During off-season main occupation is to repair nets or weaving nets, fishing in inland waters and some even go to work as labourers elsewhere. It is interesting to note that majority of the Rampani members and country boat group feel the 'need of some work' during the off-season. Given an opportunity most of them would like to work in jobs related to fishery, whereas, majority of mechanised boat members in the survey are not inclined to seek work during off-season.

For women drying fishes constitutes an occupation in which their leisure time is utilised. This occupation is popular among mechanised, Rampani as well as country boat groups. Selling fish in the market is common for womenfolk of country boat group and very popular amongst the other two groups. For Rampani group womenfolk carrying fish loads to lorries is popular leisure time work after drying fishes. It is observed that womenfolk mostly utilise their leisure time in works related to fishery. The cases of non-fishery works, such as beedi rolling are extremely rare.

For the majority of mechanised boat group, the sale of catches is either through co-operative societies or through the Federation. Only 25 per cent are stated to have resorted to other media of sales, whereas, the Rampani mainly sell to the middle-men. Majority of the country boats sell their catches at local or central markets.

The prices are said to be fixed by auction. This seems to be the unanimous opinion of all the category. No one stated that prices were fixed on previous arrangements. This seems to be rather strange, because observation proves that previous arrangement is not uncommon. The majority of the mechanised boat group is satisfied with the prices being reasonable. But, surprisingly the other two groups are not happy about the prices. It is despite the fact that they sell the catches by "auction".

Membership in the co-operative societies is very common among the fishermen - belonging to all categories. The provision of fair price commodities and credit facilities are common benefits derived from the societies. Majority of the fishermen are not satisfied with the working of co-operatives.

Insurance coverage of life is popular mainly amongst the mechanised boat group, little less popular among Rampani, but not at all popular among the country boat group. It should be noted that even though the cases of accidents on high seas are rarely heard of, risk element in the occupation is quite high. Non-popularity of insurance coverage is mainly due to unsteady and uncertain earnings. It is to be noted that south kanara is known for popularity and success of life insurance business.

Taking alcohol is not uncommon amongst fishermen. Average monthly spending on this ranged between Rs.15 to Rs.30. This aspect has to be considered in a broader context of the lonely, rugged and risky way of their life on the high seas. Under such circumstances, alcohol, mostly toddy, becomes a sociological phenomenon.

Many a fisherman is said to be prepared to quit the profession if given a salaried job. They would prefer the stability of the hard soil to that of fluid and wobbling sea, a certain and regular income to uncertain and irregular income. The plans fishermen hold for their children's future has to be noted with greatest attention. Like other parents they all want to send their children to schools. But none has expressed his willingness to encourage his children to pursue his own profession. Hitherto, marine fishing has been more than merely an occupation - it was a way of life of a group of people, a community. The skills to understand and conquer the sea was passed on from generation to generation. The fishing expertise grew along with the growth of the child. Hence, if this highly professional and skilled group of people are inclined to keep their children away from the vicissitudes of fishing, which is not unnatural in these modern fast changing days and life style, then there is an urgent need for planning for the future. Already some steps have been taken up, such as the training imparted by the various Fisheries Training Institutes and the Fisheries College. However, it is necessary to gear up such training courses so as to provide necessary trained personnel required for the future growth of this industry.

Chapter V

CO-OPERATIVE INSTITUTIONS

South Kanara district has an enviable record of co-operative movement. The first co-operative society in the district is stated to have been started in the year 1909. The fishery industry seems to have joined this movement quite early. The oldest Fishermen Co-operative Society in the district was started in the year 1918. Two factors seem to have had beneficial effects on the co-operative movement in the fishery industry of the district. First, the overall success and popularity of the movement in the erstwhile Madras Presidency (now Tamil Nadu) of which the South Kanara district had been a part until 1956, i.e., the Re-organisation of States. Second, the very socio-economic structure of marine fishermen, who have greatest degree of co-operation among themselves and live a highly co-operative life of "one for all and all for one".

At present, the co-operative movement among the fishermen covers 80 per cent of the fishermen community in the district. These societies play a distinctive role both in the social and economic life of the fishermen in particular and the fishery industry in general, in the district. The study of the co-operative institutions in the fishery industry has been broadly categorised into two groups, viz., The Primary Fishermen Co-operative Societies and The South

Kanara District Fish Marketing Federation. Such a categorisation helps a better understanding of the co-operative institutions in fishery industry.

Primary Fishermen Co-operative Societies

There are 34 Primary Fishermen Co-operative Societies in the district. The total membership of these societies in the year 1974-75, as per the Annual Report of the Fisheries Department was 12,980 and the total paid up share capital was about Rs.4.97 lakhs. As against these, the figures for 1973-74 were 12,993 members and a paid up share capital of Rs.4.90 lakhs. As can be seen, in spite of a marginal decrease in the number of members from 12,993 in the year 1973-74 to 12,980 in 1974-75, there has been an increase in the paid up share capital of these societies from Rs.4.90 lakhs to Rs.4.97 lakhs. During the year 1974-75, the government had sanctioned about Rs.78 thousand as a share contribution to 12 Primary Co-operative societies. Table 18 provides the details of these 34 Primary co-operative societies as to their membership, share capital and the government's share contribution.

As on 31-4-1975, of the 34 societies, only one society had a membership of 1,685, another a membership of 1,321, five societies had membership between 500 - 1,000, twelve between 250 - 500 and fifteen had a membership of less than 250. As many as 27 societies out of 34 had membership of

Table 18: Membership, Share capital, Government Share capital of each Fishermen Co-operative Society in the year 1974-75.

Sl. No.	Name of the Society	Membership No.	Share Capital Rs.	Government Share Capital Rs.
1.	Mangalore Bengre F.C.S.	329	20,419	5,000
2.	Uchil Bovis F.C.S.	277	21,075	5,000
3.	Ullal F.C.S.	283	16,239	..
4.	Kulai F.C.S.	326	16,656	..
5.	Hosabettu F.C.S.	323	11,570	..
6.	Baikampady F.C.S.	268	7,994	2,000
7.	Mangalore Mogaveera F.C.S.	580	24,215	..
8.	Iddia F.C.S.	109	2,330	..
9.	Sashihithlu F.C.S.	208	5,780	3,500
10.	Polippu F.C.S.	219	11,399	3,500
11.	Kaup F.C.S.	223	6,780	..
12.	Bada Yermal F.C.S.	223	13,408	..
13.	Thenka Yermal F.C.S.	189	6,680	..
14.	Moolki F.C.S.	306	27,012	..
15.	Mulur F.C.S.	133	5,340	..
16.	Padubidri F.C.S.	239	11,605	..
17.	Hejmadi F.C.S.	236	13,690	..
18.	Fish & Fish By-Products, Udyawar.	1,685	36,980	..
19.	Kaipunjal F.C.S.	129	2,805	3,500
20.	Udyawar Mogers F.C.S.	58	1,521	1,500
21.	Malpe F.C.S.	867	30,040	20,000 NCDC
22.	Paduthonse F.C.S.	385	8,470	5,000
23.	Manur F.C.S.	617	21,211	..
24.	Hangarakatta F.C.S.	387	12,784	..
25.	Kodi F.C.S.	171	6,427	3,500
26.	Barkur F.C.S.	103	3,455	..
27.	Gangolli F.C.S.	1,321	48,541	20,000 NCDC
28.	Maravanthe F.C.S.	457	17,468	5,000
29.	Tarapathy F.C.S.	627	18,995	..
30.	Navunda F.C.S.	211	9,560	..
31.	Hadivinakone F.C.S.	292	10,592	..
32.	Kirimanjeshwar F.C.S.	374	16,439	..
33.	Beejady F.C.S.	635	14,175	..
34.	Coondapur Boat Building Society.	190	14,865	..
	Total	12,980	96,530	77,500

less than 500 members each.

The largest amount of paid up share capital of any society was about Rs.49 thousand in the case of Gangolli society. It is interesting to note that this society ranked only second in the membership with 1,321 members, whereas Fish and Fish By-products Society of Udyawar, even though accounted for the first place in the membership with 1,685 members, accounted for only second place in paid up share capital with about Rs.37 thousand. Only these two societies had a paid up capital of more than Rs.30 thousand. Six societies had a paid up share capital of between Rs.20 thousand and Rs.30 thousand, whereas fourteen had between Rs.10 thousand and Rs.20 thousand and twelve less than Rs.10 thousand. So much so, out of 34 societies, as many as 26 had a paid up share capital of less than Rs.20 thousand each.

The above analysis of the membership and the paid up share capital of the fishermen co-operative societies indicates one crucial factor. It is that they are organised in a highly decentralised manner so as to serve smaller geographical area and lesser number of people in as efficient a manner as they could. When the member of these co-operative societies, their membership and paid up share capital are viewed in the background of a coastline of about 140 kms and the total fishermen population this point gets a further proof.

The overall activities of these societies, except the one engaged in the boat building works, are spread over financing, sale of fishing equipments and sale of daily requirements like groceries. The intensity of these activities, naturally, depends upon the paid up share capital and membership of each society. With a view to gauging the performance of these societies a survey was conducted.

The questionnaire in the survey covered a wide spectrum of activities. Questions were asked pertaining to membership, share capital, funds and reserves, deposits from the members, borrowings, investments, issue of loans, gross and net profits, dividend declared, number of employees, nature of business transacted, sales, debtors and marketing of fish. Apart from the details of activities like financial assistance, etc., opinions were sought on important issues like response of the fishermen to co-operatives, governmental aid, role of nationalised banks, finance from co-operative banks, repayment problems faced by the fishermen, problems faced by the society and any other issue thought important by the society. The factual data regarding share capital, membership, business activities, etc., were sought for a five years period of 1970-71 to 1974-75. The following societies responded to questionnaire:

1. Mangalore-Bengre F.C.S.
2. Uchil Bovis F.C.S.
3. Ullal F.C.S.
4. Hosabettu F.C.S.
5. Kulai F.C.S.
6. Baikampady F.C.S.
7. Mangalore Mogaveera F.C.S.
8. Sashihithlu F.C.S.

9. Polippu F.C.S.
10. Kaup F.C.S.
11. Bada Yermal F.C.S.
12. Thenka Yermal F.C.S.
13 Moolki F.C.S.
14. Mulur F.C.S.
15. Hejmadi F.C.S.
16. Kaipunjal F.C.S.
17. Malpe F.C.S.
18. Manur F.C.S.
19. Hungarakatta F.C.S.
20. Gangolly F.C.S.
21. Marvanthe F.C.S.
22. Tarapathy F.C.S.
23. Navunda F.C.S.
24. Kirimanjeshwara F.C.S.
25. Beejady F.C.S.

The responding 25 societies accounted for 9,748 members out of the total membership of 12,980 in 1974-75 for all the 34 fishermen co-operative societies in the district. In the case of the paid up share capital they accounted for Rs.4 lakhs out of the total of Rs.4.97 lakhs for 34 societies. Hence, even though the survey could not cover all the 34 societies, the 25 societies covered by the survey represented more than two-thirds of the total membership and more than four-fifths of the paid up share capital of all the fishermen co-operative societies in the district.

Of the 25 responding societies, 9 were established before the Independence, i.e., before 1947, the oldest among them dated back to the year 1918. 11 societies were established after independence, of which 8 were established in the planning era. Three of the responding societies did not disclose their year of establishment.

Membership:

Table 18 has given the membership pattern of all the primary fishermen co-operative societies. As already stated majority of the societies have a membership of less than 500. The survey revealed the same phenomenon. Of the 25 responding societies majority had a membership in the 100 - 300 range.

However, the survey revealed a definite increasing trend in the membership pattern of the responding societies during the period of 1970-71 to 1974-75. For example, during the years 1970-71 and 1971-72, there were 12 societies in the membership range of 100 - 200, whereas the number of societies in this range got reduced to 4 in 1973-74 and further to 3 in the year 1974-75. This decrease in this range is linked with a corresponding increase in the membership ranges of 200 - 300, 300 - 400 and 600 - 700.

Share Capital:

As is revealed by Table 18, the survey also revealed the fact that majority of the societies had a paid up share capital of less than Rs.20,000.

Of the 25 responding societies, 10 societies had received a Government contribution into their share capital and 2 societies from the National Co-operative Development Corporation. The survey revealed that this type of Government contribution was a special feature of the year 1974-75 only. Before that year no such contributions were reported. It was further revealed by the survey that such Government contributions were found both in the case of societies which could be stated to have "best performance", as well as those which were practically 'dormant' in their activities. It is obvious that the such contributions were not based upon the performance of the societies concerned.

Funds, Reserves and Deposits:

On an average, as many as 5 societies had no funds and reserves during 1970-71 to 1974-75. In the year 1974-75, only one society had a fund and reserve of Rs.3 lakhs, two others between Rs.60,000 - Rs.75,000 and Rs.45,000 - Rs.55,000 respectively, four between Rs.10,000 - Rs.20,000 and as many as 10 societies had reserves of less than Rs.5,000 each. When compared with the year 1970-71, actually there is a reduction in the number of societies having reserves and funds, from 19 to 17 in the year 1974-75. However, there seems to be some improvement in the quantum of reserves and funds during these five years. In 1970-71, there were 5 societies with reserves and funds of less than Rs.3,000 whereas the number was only 2 in 1974-75 and an increase was observed in the number of societies with a reserve in the range of Rs.5,000 - Rs.10,000 each, from only 1 to 5.

With regard to the deposits from the members, there seemed to be a stable picture with as many as 13 societies having the deposits of less than Rs.1,000 between 1970-71 and 1974-75. In 1974-75, only 2 societies had deposits in the range of Rs.40,000 - Rs.50,000, 1 between Rs.10,000 - 20,000 and 4 societies had been Rs.1,000 - Rs.5,000.

In the overall analysis, the position of funds, reserves and deposits does not give a picture of satisfactory performance of these societies.

Borrowings:

As many as 22 out of the 25 responding societies had benefitted from borrowings from the government in the year 1972-73. However, the number decreased to 11 each for the years 1973-74 and 1974-75. The quantum of borrowing has not been uniform among the societies. Their number is, more or less, equally spread out in the borrowing ranges of Rs.5,000-10,000, Rs.10,000 - 15,000 and Rs.15,000 - 20,000. There were only two societies in the year 1974-75 with a borrowing of more than Rs.2,50,000 each.

Borrowings from banks was found to be not very popular source, as many as 19 out of 25 societies, on an average, did not resort to this source during the period 1970-71 and 1974-75. Even those who did borrow from banks limited their borrowings to below Rs.5,000 each. For example in the year 1974-75, out of six societies borrowing from banks as many as four had borrowed less than Rs.5,000 each and only the other two had borrowed between Rs.10,000 - 15,000. The district has not only pioneered the banking industry in the state but also has proved great dynamisms in the banking habits of the people by extensive coverage, both in lending and deposit mobilisation. Such being the case, high dependence of the fishermen co-operative societies on government loans only forces one to conclude that the societies tread the easiest path in their financial activities. It might be because of an implied feeling of write-off possibilities of the governmental loans. In this respect, these societies cannot be said to be better than any other co-operative societies elsewhere.

Investments:

On an average about five societies had no investments whatsoever during 1970-71 to 1974-75 period. On an average, about 13 societies had an investment of below Rs.3,000 each. Only one society had an investment of above Rs.1,00,000 in the year 1974-75.

As many as 18 out of 25 societies had some investment reserve fund in the year 1974-75. Two societies had specifically stated to have no investment reserve fund, while 5 societies did not provide any information about it. Among those 18 societies having such a fund, 6 had in the range of Rs.5,000 - 10,000, another 4 in the range of Rs.10,000 - 15,000, other 7 had less than Rs.3,000 each. Only one society had an investment reserve of above Rs.50,000.

Loans to its Members:

Majority of the societies provided loans to its members.

On an average 20 out of 25 societies covered under the survey provided such loans. The majority of loans granted were below Rs.10,000. In 1974-75, out of 21 societies granting such loan facilities, 8 had granted less than Rs.5,000 and 7 between Rs.5,000 - 10,000. Only 3 societies had granted loans between Rs.10,000 - 15,000 and only one between Rs.25,000-35,000. In 1974-75, none of the societies had ventured to grant loans above Rs.35,000. However, instances were found when the total loans granted by some societies were greater than Rs.75,000 or even more than Rs.1,00,000, like in the year 1972-73.

Recovery:

The recovery of loans from the members was found to be not very encouraging. In the year 1974-75, all the 25 societies reported overdues of the loans from their members. Majority of them were in the range of below Rs.10,000. Only one society reported an overdue of above Rs.1,00,000. However, the data on the period structure of overdues are not available.

Business Activities:

The major activity of these societies seems to be confined to grant of loans to its members. As many as 19 out of 25 societies did not deal with provisions such as food-grains or diesel oil and 15 out of 25 did not provide its members with goods such as salt and yarn. Only about 5 societies, on an average, dealt with these commodities apart from granting loans. It was found that only those of the societies which were "functioning well" dealt with these commodities.

On an average, only two societies were engaged in the purchase and sale of fish on behalf of its members, but the quantum and value of such transactions varied from year to year. Therefore, it is evident that the benefit of co-operation has not percolated into the main activity of the fishermen, viz., the sale of fish. This is further proved by the dominant role still being played by the middlemen in this field. This will be dealt with in a later chapter.

Management Pattern:

The study disclosed that a substantial number of these societies have no permanently employed management staff. This speaks volumes about the financial viability and the economic performance of these societies.

On an average, during 1970-71 to 1974-75, 11 out of 25 societies were managed by only one honorary president and one honorary secretary. Only 6 had paid clerks besides presidents and the secretaries. Three societies had two employees each, besides president and the secretary and only two societies had three employees each besides the president and the secretary. Rest of the societies had no full time employees. It was disclosed that even among the societies employing clerical staff, due to lack of adequate work load some societies employed them on part time basis.

Profitability:

Not all the 25 societies furnished the data on the profitability. On an average, during the five year period of 1970-71 to 1974-75, 17 societies provided such an information. Majority of the profit earning societies earned less than Rs.500 per year. One society was found almost each year between 1970-71 and 1974-75 to have earned above Rs.5,000 profits.

However, a definite decrease in the number of societies earning profits is seen during the period of 1970-71 to 1974-75. On an average, one society had been incurring loss during the said period and about 3 societies were running on no profit no loss pattern.

In the year 1974-75, only 4 societies had declared dividends, one at the rate of 2 per cent, another of 4 per cent and two societies at the rate of 6¼ per cent each. Nine societies had not declared any dividend at all. Twelve societies stated that their accounts were yet to be audited.

Following are the some of the problems faced by the societies:

1. Firstly, the bye-laws of most of the societies had outlived their period of utility and need some drastic changes. For example, these

societies were originally thought of as source of development of fishing profession only. Consequently no provisions were made in the bye-laws to undertake other business activities like channelising foodgrains. As has been seen most of these societies do not help their members in their daily life such as foodgrains. This has hurt the co-operative movement on the one hand and has left their members helpless on the other.

2. Majority of the societies suffer from lack of suitable office space and managerial staff. Even the society at Gangolli, which was well off and paid a monthly salary of Rs.713-50 to its secretary and Rs.355-10 to manager, complained of lack of suitable accommodation "due to paucity of funds". In the case of another society, the school headmaster was maintaining its accounts and on his transfer to some other place, no one was there to look after the accounts.

3. Many societies complained of the slow pace and the insignificant governmental assistance. They sought greater assistance from the government. Many asked for the extension of Marginal Fishermen Scheme to societies as well and for a grant-in-aid. One society suggested a novel scheme to boost the financial position of the societies. It recommended for an interest free contribution from the government of as much as 20 times the paid up share capital of each of the societies.

4. Many societies complained of the lack of timely supply of the subsidised goods to them, such as yarn and nets, which they stated deprived

them of their business opportunities and thus the profits.

5. With regard to repayments of loans by its members, majority of the societies felt that normally the members were prompt in the repayment, excepting during fish family periods. They wanted a change in the repayment system so as to avoid forceful collection of the default interests from their members. Some societies wanted a scheme of renewal of the loans instead of default interest during lean fishing periods.

6. In the case of one particular society there was a misappropriation of Rs.13,000 by some office bearers of the society about 20 years ago. The culprits were said to have been convicted but the amount of misappropriation continued even today in its books of accounts as "loss". The amount has not been written off despite repeated requests due to some technical snags.

7. Three inter-related factors seem to have distinctly affected the performance of these societies in the district. Firstly, the mechanisation of fishing, secondly gradual abandoning of fish curing and thirdly the expansion in the activities of the Fish Marketing Federation. The mechanisation of fishing has made the fishermen more mobile and they find it more easy to buy their requirements at the landing centres such as Malpe, Moolki and Mangalore, rather than from their own societies. The mechanised boats being financed by/through

the Federation these fishermen have come under greater control of the Federation and thus the Federation's activities have eclipsed those of the primary societies. Earlier fish curing was a big occupation and the primary societies traded very much on the salt required for curing. With the change in the emphasis from cured fish to iced fresh fish the societies have lost a big deal of business activities.

Added to these crippling factors the erratic fish landings coupled with greater activities of private processors and exporters have badly affected these societies.

Overall Assessment:

With small capital base, insufficient reserves, negligent investments, substantial loan overdues, insignificant profits, rigid and outmoded bye-laws, the Primary Fishermen Cooperative Societies are certainly in trouble and need some immediate action. The spirit with which these societies were launched are really admirable, but it should not make one blind to the fact that they have remained stagnant over the period when the fishery industry was undergoing a major upheaval by way of mechanised fishing and export orientation. The South Kanara District Co-operative Fish Marketing Federation should accept some responsibility for this state of affairs of the primary societies. The Federation took upon itself the entire task of mechanisation and modernisation of fishery industry in the district without actively involving these liliputian primary societies. The primary societies could have been utilised to channelise funds and services for mechanisation programme.

The South Kanara District Co-operative Fish Marketing Federation.

The South Kanara District Co-operative Fish Marketing Federation was registered on 28-2-1954 and started functioning on 11-4-1954. In its 21 years of working, the Federation has played many a pioneering role in the development of fishery industry of the district long before banks could muster their courage to actively participate and even before government's special interests were aroused in this industry. In this period the Federation has got intervowen with the socio-economic life of the fishermen community in particular and the fishery industry of the district in general. The Federation is deemed to be registered under Section 7 of the Karnataka Co-operative Societies Act 11 of 1959.

Objectives:

The bye-laws of the Federation have clearly demarcated the following 15 objectives for its working:

1. To promote self-help, thrift and mutual aid among its members.
2. To advance loan to members on the security of their fish and fish products and for construction and maintenance of mechanised fishing crafts.

3. To arrange for marketing of fish and fish products, either wholesale or retail within and beyond the state and abroad.

4. To purchase and sell on its own account fish and fish products of its members and to act as an agent on behalf of the members for the sale of such products.

5. To open adequate number of branches, purchase and sale depots to meet the convenience of business of members in particular and other customers in general.

6. To set up boat building yard and to construct boats and other crafts required for the mechanised fishing scheme, manufacture or purchase accessories needed therefor and to run workshops, undertake repairs and servicing of mechanised boats.

7. To construct, own or hire deep sea fishing launches, trawlers, ice factories, cold storage plants, fish processing plants, fish curing yards, transport vans, godowns, etc. for stepping up production and for proper preservation and marketing of fish and fish products and for this purpose purchase or take on lease lands and premises as also to sell or let on hire these to members, to affiliated societies and to others connected in fishing industry, and if necessary take over the management thereof from affiliated societies.

8. To purchase, store and sell in wholesale and retail and to manufacture fishery requisites and spare parts that are required for fishing industry for the benefit of its members.

9. To own or to take on lease fish markets wherever possible to promote fish trade and establish fish stalls for the sale of fish inside these markets.
10. To act as an agent for the joint purchase of industrial, domestic and other requirements of the members.
11. To undertake schemes for the improvement of the socio-economic condition of fishermen and also to hold conferences of affiliated societies and of others evincing interest in the fishing industry.
12. To make arrangements for the supply of marketing information to members as well as to affiliated societies.
13. To arrange for grading and quick transport of fish and fish products.
14. To accept deposits, both savings and fixed, from members and non-members.
15. To do such other things as are incidental and conducive to the attainment of any or all the objectives set forth above.

As could be seen from the above list of objectives the Federation aims at active participation and involvement in every phase of the fishery industry of the district. The Federation along with its member societies constitute a good example of co-operative efforts specialised in a particular profession/industry.

Membership and Share Capital:

The bye-laws provide for three classes of memberships:

i) 'A' Class membership is restricted to state Government subject to the provision of the Karnataka Co-operative Societies (KCS) Act and rules framed thereunder.

ii) 'B' Class membership is open to all fishermen co-operative societies functioning within the area of operation of the Federation registered or deemed to have been registered under the K.C.S. Act.

iii) 'C' Class membership is open to any person over 18 years of age, who carries on fishing, fish curing as his profession or any fisherman who is connected to fishing industry and competent to contract.

As per the annual report of the Federation for the year 1974-75, there were totally 2,033 members of whom 1 was Class 'A', 33 were Class 'B' and 1,999 were Class 'C' members.

The authorised share capital of the Federation, as provided for in the bye-laws was Rs.10 lakhs. It is made up of 500 'A' Class shares of Rs.1,000 each, 1,000 'B' Class shares of Rs.100 each and 40,000 'C' Class shares of Rs.10 each. A restriction that no individual shall take more than

200 shares has been provided for in the bye-laws. The total share capital as on 30-6-1975 was about Rs.9.72 lakhs. Of this Rs.4.40 lakhs were from 'A' Class shares, about Rs.11,000 'B' Class shares and about Rs.4.72 lakhs from 'C' Class shares. The N.C.D.C. had contributed Rs.49,000 to the total share capital. Table 19 provides the trend in the growth of the membership, classwise and of the capital.

Table 19 reveals comparatively a very slow trend in the growth, both of membership and the capital, during first ten years between 1954-55 and 1963-64. The growth rate is moderately significant during the 1963-64 to 1965-66 period and more significant after 1966-67. This trend is due to intensified attempts of the Federation at acquisition of mechanised boats for the members and greater export market for the prawns. Certain schemes of assistance for boat mechanisation, particularly the Agricultural Refinance Corporation Scheme of 1968-69, added to the faster expansion of the individual membership and the share capital base of the Federation.

Table 19 indicates the change in the 'B' Class membership over the period. It was given to understand that up to 1969-70, some of the Fishermen's Primary Co-operative Societies located in the border towns and villages of Kasargod (Kerala State) continued to be members of the Federation. These places had been a part of South Kanara district before the reorganisation of States in 1956. However, since 1070-71 the number of 'B' Class membership has been constant at 33.

Table 19: Trend in the Growth of Membership and Share Capital of the Federation:

Year	Membership			Paid up capital in lakh rupees *
	A	B	C	
1954-55	-	42	60	0.10
1955-56	-	43	66	0.11
1956-57	-	43	75	0.10
1957-58	-	45	89	0.16
1958-59	-	46	106	0.18
1959-60	1	47	113	0.17
1960-61	1	35	146	0.17
1961-62	1	34	173	0.16
1962-63	1	34	193	0.17
1963-64	1	36	359	1.38
1964-65	1	37	467	2.58
1965-66	1	35	542	2.63
1966-67	1	35	788	2.92
1967-68	1	37	1,203	6.15
1968-69	1	37	1,665	8.50
1969-70	1	37	1,973	9.44
1970-71	1	33	1,927	9.19
1971-72	1	33	1,923	9.20
1972-73	1	33	1,918	9.19
1973-74	1	33	1,992	9.22
1974-75	1	33	1,999	9.72

* Rounded off to nearest thousand rupees.

Source: List of Developmental Activities of the Federation.

Borrowed Capital:

As against the owned capital of Rs.9.72 lakhs, the Federation has a borrowed capital of Rs.140.31 lakhs. The loans have been procured from Central Co-operative Bank and the government. The Annual Report for 1974-75 has shown the following sources and types of loans received by the Federation:

		Amount in lakh rupees
1.	Central Co-operative Bank loans:	
	(a) C.C.L. 210 B	22.02
	(b) C.C.L. 252 B	8.00
	(c) Short term ordinary loan 3	2.00
	(d) -do- 4	2.00
	(e) -do- 5	5.00
	(f) ARC long term loan	72.58
	Total	111.60
2.	Government loans:	
	(a) Ice & Freezing factory	6.94
	(b) 36 Mechanised boats MY 141	0.54
	(c) Interestless loans	20.00
	(d) S.C.D.C. (plate freezer)	0.53
	(e) S.C.D.C. (workshop)	0.70
	Total	28.71
	Grand Total	140.31

The combined capital, share and borrowed of the Federation as on 30th June 1975 amounted to more than Rs.150 lakhs.

Also, there were various deposits and reserves, though not very significant.

Management:

The Federation is managed by the President, the Board of Directors, the General Manager and the Secretary. They are assisted by the subordinate staff.

The various classes of shares are represented at the Board by their elected Directors. Nine directors are to be elected by 33 member Primary Fishermen Co-operative Societies, holding 'B' Class shares. Seven directors are to be elected by the individual members holding 'C' Class shares. Then, there are government nominees.

Normally, the General Manager of the Federation is the government nominee of the rank of Deputy Director of Fisheries. The Secretary is nominated by the Co-operative Department. The Board of Directors, along with its President, constitutes the policy making body. The General Manager and the Secretary constitute the executing officers with some rights of their own in day-to-day operations.

Thus, the management of the Federation is so shaped that each and every party with some stake in the Federation has a representation and a say in the management of its affairs.

Activities of the Federation:

The overall activities of the Federation could be categorised into 4 broad categories, viz., Financing, Sale of equipment and spare parts, Marketing of fish and Processing and exports.

1. Financing:

Financing of mechanised boats constitutes the major activity of the Federation, at least from the point of view of quantity loans granted. Also, such financing constitutes the nuclei around which all other activities of the Federation are spun, like the sale of equipment and spare parts; building and servicing of mechanised boats; the marketing of fishes landed by mechanised boats financed by/through the Federation as also the activities of processing and exports.

More than Rs.90 lakhs under ARC scheme and a little over Rs.121 lakhs under MY boats scheme have been channelised through the Federation for the mechanisation of boats in the district. Apart from this, there is State Bank of Mysore Scheme for boat mechanisation which is also financed through the Federation. Details of these financial activities will be taken up in a separate chapter dealing with the financing of fishing industry.

2. Sale of Equipment, Spare Parts and Diesel Oil:

This head constitutes the second major activity of the

Federation. Along with the intensified mechanisation of fishing, the sale of appropriate fishing gears, equipment, spare parts and the diesel and the lubricating oil have also shown an appreciable increase in the Federation's sales volume. Table 20 presents the trend in the sale of these goods by the Federation.

It can be seen from Table 20 that up to the year 1959-60 the main sale had been of the equipment and gears and the total amount of sale was not very significant, whereas from the year 1960-61, a steep increase is seen in the sale of equipment and gears, along with the sales volumes of diesel and lubricating oil and the spare parts. This is an indication of the impact of and the trend in the mechanised fishing in the district.

Comparatively, a decrease can be observed in the sales volume of the equipment and gears since the year 1970-71. It is given to understand that this was because of two reasons. Firstly, the mechanised boat, financing under the ARC scheme had come to an end and financing under other schemes was under a low key. Secondly, the period between 1970-71 and 1972-73 had been comparatively a unfavourable fish landing period, especially the landings of prawns. During the same period of a reduction in the sale of diesel and lubricating oil is given as proof of unfavourable fishing season and it was stated that whatever little increase could be observed was mainly due to enhanced rates rather than substantial increase in the total sales. The same was said to be true in the case of value of spare parts sales.

Table 20: Trend in the Sale of Equipments, Spare Parts, Diesel and Lubricating Oil.

(In lakh rupees)

Year	Fishing equipments and Gears	Spare Parts	Diesel and Lubricating oil	Total
1956-57	0.15	-	-	0.15
1957-58	0.14	-	-	0.14
1958-59	0.18	-	-	0.18
1959-60	0.90	-	-	0.90
1960-61	1.21	-	0.09	1.30
1961-62	1.10	-	0.28	1.39
1962-63	1.23	-	0.59	1.82
1963-64	0.78	0.04	1.04	1.86
1964-65	0.98	0.09	1.82	2.89
1965-66	0.78	0.18	2.91	3.87
1966-67	2.05	0.32	3.92	6.29
1967-68	3.60	0.71	5.97	10.28
1968-69	4.52	1.36	10.52	16.40
1969-70	7.77	2.11	11.58	21.46
1970-71	7.03	2.27	14.67	23.97
1971-72	5.14	2.52	14.93	22.59
1972-73	2.52	3.60	8.92	15.04
1973-74	3.93	3.61	11.94	19.48
1974-75	3.21	3.99	11.53	18.73

Source: South Kanara District Co-operative Fish Marketing Federation, Mangalore.

The Federation has a sales depot at its Head Office at Mangalore. The required goods are purchased direct from the producers or wholesalers. The profits thus earned by avoiding middlemen are shared with the buyers (the members of

Federations) of these goods, by keeping the margin as low as possible, and by providing the credit facilities. In certain cases the member Primary Fishermen Co-operative Societies are also appointed as agents to sell these goods to the individual members of Federation and to others who need them. There are 3 servicing stations maintained by the Federation, one each at Bengre, Malpe and Gangolli, to cater to the servicing requirements of boats financed by/through the Federation. Two Diesel stations, one at Mangalore and other at Malpe, are also maintained by the Federation for the sale of diesel and lubricating oils to its members on credit.

The boat building yard of the Federation is located at Mangalore. It has the requisite capabilities of building 30' and 32' mechanised boats. As there is no design engineer at this yard no other boats could be built at present. The yard had been a profit making venture. However, lately the demand for boats has steeply decreased.

3. Marketing of Fish:

As already pointed out, for the mechanised boats financed through the Federation, it is made compulsory to sell their catches through the auction conducted by the Federation. There are 5 centres of Federation, viz., Bengre, Moolki, Hangarcutta, Malpe and Gangolli, which conduct the auctions of fish landed. Apart from these five centres the Federation has appointed agents to sell fish on its behalf. Such agents are found at Belliapattanam and Charvattur in Kerala. In some cases, some Primary Fishermens Co-operative Societies within the district are appointed as agents.

The Federation charges a 5 per cent commission (it was 4 per cent up to 1974) for conducting the auction. The bidders have to deposit a sum of Rs.10,000 for the right to bid in Mangalore centre or Rs.15,000 for the right to bid at all the centres of the Federation. This is a pre-auction deposit to ensure responsible bidding during the auction. At present there are about 14 approved bidders for Federation.

On the finalisation of bids the respective fishermen are paid an immediate 50 per cent of the sales price in cash. The rest of 50 per cent is adjusted against the credit sales of equipment, fishing gears, diesel, lubricating oils, interest on loan due and towards the instalment of loan itself.

The 5 per cent charge for auctioning the fish landings of the members will have to compensate the administrative costs of auctioning, maintaining the credit sale transactions and servicing of the debts.

As has been pointed out there are 3 different schemes under which mechanised boats were financed by the Federation. These schemes were: MY Scheme, ARC Scheme and SBM Scheme. The value of sale of fish by auction in respective category of boats between 1960-61 and 1974-75 is

Table 21: Trend in the Sale Proceeds of Fish Landed by Mechanised Boats Financed through Federation.

(In lakh rupees)

Year	MY and other Boats	ARC Boats	SBMS Boats	Total
1960-61	1.50	-	-	1.50
1961-62	2.77	-	-	2.77
1962-63	5.27	-	-	5.27
1963-64	7.11	-	-	7.11
1964-65	6.13	-	-	6.13
1965-66	17.55	-	-	17.55
1966-67	23.97	1.50	-	25.47
1967-68	24.88	12.99	-	37.87
1968-69	34.12	29.08	-	63.20
1969-70	17.92	28.76	6.33	53.01
1970-71	15.15	21.89	15.00	52.04
1971-72	17.72	22.41	12.82	52.95
1972-73	33.60	44.43	25.43	103.46
1973-74	59.42	48.81	37.58	145.81
1974-75	37.94	42.13	21.92	101.99

Note: Figures are rounded off to nearest thousand rupees.
Source: South Kanara District Co-operative Fish Marketing Federation, Mangalore.

As is revealed by the Table 21, there has been an impressive over 75 times increase in the total sale of fish from a small amount of Rs.1.5 lakhs in 1960-61 to Rs.102 lakhs in 1974-75. MY boat scheme was in operation from 1960-61, whereas ARC scheme became operational in 1966-67 and SBMS in 1968-69.

However, it was stated that the rule of compulsory sale through Federation was not so vigorously enforced up to 1974-75, otherwise the value of sales should have been greater. In the current year, 1975-76, strict enforcement of the rule was under active consideration.

Apart from the auctioneering activity, the Federation acts as an agent for the Fisheries College, Mangalore, to buy fish on their behalf. Lately the value of fish so bought on behalf of and sold to Fisheries College has not been very significant. In 1974-75, it was only Rs.11,032.

4. Processing and Exports:

Since 1969-70, the Federation has undertaken to processing and exports of fish. It has its own processing centre at the Federation's Head Office at Mangalore. It is equipped with ice production, cold and freeze storage capacities. The trend in the export is presented in Table 22.

It can be seen from Table 22 that exports consist of mostly frozen prawns. In the year 1972-73, when the canned fish was exported for the first time, the value of frozen fish exported has shown a steep decline and in 1973-74, it was nil. In 1974-75, the exports of frozen fish has picked up, whereas in the case of canned fish, the value of exports has been on the decrease.

Apart from the utilisation of processing, freezing, cold storage and ice production capacities towards export, these capacities are also leased out to private parties whenever the Federation could afford to do so. This also earns some income to the Federation.

Table 22: Trend in Export of Processed Marine Products of the Federation:

(In lakh rupees)

Year	Frozen Fish	Canned Fish	Total
1969-70	1.58	-	1.58
1970-71	6.00	-	6.00
1971-72	5.00	-	5.00
1972-73	0.74	3.17	3.91
1973-74	-	0.58	0.58
1974-75	3.79	0.35	4.14

Source: South Kanara District Co-operative Fish Marketing Federation, Mangalore.

Financial Results:

The performance of the Federation, in financial terms, was stated to be profitable up to the year 1969-70. Till then even the dividends were declared by the Federation. However, since 1970-71, the Federation has been continuously incurring loss. The accumulated losses during the five years of 1970-71 to 1974-75 amounted to Rs.39.14 lakhs. The yearly break-up of the total loss is as follows:

Year	Loss in lakh rupees
1970-71	8.94
1971-72	12.01
1972-73	6.77
1973-74	2.68
1974-75	8.74
Total	39.14

The heaviest loss of Rs.12.01 lakhs was incurred in the year 1971-72. The year 1973-74 ended with a loss of Rs.2.68 lakhs, which is the least amount of loss during the five years of 1970-71 to 1974-75. The trend in losses was such that a sharp increase is seen from Rs.8.94 lakhs in 1970-71 to Rs.12.01 lakhs in 1971-72. Between 1971-72 and 1973-74, a downward trend in losses is observed from Rs.12.01 lakhs in 1971-72 to Rs.6.77 lakhs in 1972-73 and to Rs.2.68 lakhs in 1973-74. However, losses increased sharply from Rs.2.68 lakhs in 1973-74 to Rs.8.74 lakhs in 1974-75.

Analysis of Losses:

An analysis of the losses for the year 1974-75 would serve as a good example. The year ended with a net loss of Rs.8.74 lakhs for the Federation. But not all the wings of the activities of the Federation resulted in losses. The Federation actually earned a profit of Rs.2.70 lakhs on its Trading Account (purchase and sale of spare parts and equipments for fishing, diesel and lubricating oil, etc.) as against the budgeted profits of only Rs.3.50 lakhs. The Manufacturing Account (sale of diesel engines, hulls, boat building equipment, etc.) resulted in a profit of Rs.43,000 as against the budgeted figure of Rs.50,000. The total profits on these two accounts amounted to Rs.3.13 lakhs.

The profits earned by trading and manufacturing were substantially reduced by the huge losses on other two accounts

Ice freezing plant alone accounted for Rs.2.35 lakhs of losses. Packing plant resulted in a small loss of Rs.7,800. The total losses on these accounts amounted to Rs.2.43 lakhs. The overall net results on all these four accounts still resulted in a small profit of about Rs.70,000.

In the final profit and loss account (inclusive of all the four accounts and the results financial assistances, maintenance of Head Office, etc.) the Federation ended up with a huge loss of Rs.8.74 lakhs. The losses, therefore, at least for the year 1974-75 have been mainly due to activities other than manufacturing and trading.

However, the quantity of losses for the year 1974-75 gave rise to some fundamental doubts. For example, the loss on account of canning plant as shown in the account is Rs. 7,800-88. During the year the value of fresh fish bought for the canning purposes was only Rs.771-01. The opening stock value was Rs.70,605-34. The sales during the year was Rs. 34,861-98. But the closing stock at the end of the year is stated at Rs.67,332-36. With such a small canning and a substantial sale during the period as to how such an amount of closing stock could remain can be answered only when the method of closing stock valuation is looked into. Or it would be possible only when the existing price during the year were far higher to the cost of the stock at the beginning of the year. Normally, the losses on this account ought to have been greater than as shown. But there are the matters pertaining to technical aspects of accounting and hence the existing figures of losses, Rs.8.74 lakhs, for the year 1974-75 have to be the base for all further analysis of the performance of the Federation.

Causes for Losses:

The Annual Report for the year 1974-75 clearly spells out that "due to the unfavourable natural conditions the financial condition of the Federation during the years 1969-70, 1970-71 and 1971-72 was not hopeful". Consequently, as a first cause for the losses, both present and the recent past, could be sighted as the "unfavourable natural conditions", especially during the three year period of 1969-70 to 1971-72. The repercussion of these years were of telescoping in nature to the finances of the Federation. As could be verified from the appropriate data the landings of prawn during the period of 1969-70 to 1974-75 have been very erratic. And it is to be noted that the prawn has been the central figure of all the activities of the Federation, like the sea foods industry of the district.

Second cause for the losses has been the non-punctuality of the members in the payment of interest on loans for the boats they had bought through Federation. As has been seen in the analysis of losses, the major share of losses goes to the financial assistance programmes. In the year 1974-75, the

Federation had budgetted for an interest receipt of Rs.25.92 lakhs, but actually only Rs.4.88 lakhs were collected. On the other hand, the Federation had to pay from its accounts interest on various loans, utilised for the financing schemes to the extent of Rs.14.19 lakhs in the same year. The Annual Report for 1974-75 states that "had the mechanised boat owners (financed by the Federation) made full payment of their interest dues the loss indicated in the Report (Rs.8.74 lakhs) would not have been incurred".

The third cause for the losses in 1974-75 has been the fall in the value of landings by the mechanised boats for the Federation. This was due to lower prices offered by the buyers. During the year 1973-74 and 1974-75, there is a decrease of about Rs.45 lakhs from Rs.146 lakhs to Rs.101 lakhs, in the value of landings by the A.R.C., M.Y. and S.B.M. mechanised boats. Price fluctuations coupled with fluctuating landings drastically affected the financial performance of the Federation.

The fourth cause could be seen in the performance of ice and freezing plant. Total loss of this plant during the year 1974-75, as already seen, is Rs.2.35 lakhs. As far as sale of ice is concerned, it is pointed out that no loss was incurred as the price was fixed at profitable level. However, the loss on this account was stated to have been from the freezing facilities. During the year 1974-75, the prawn landings were not satisfactory. But despite the wide-spread advertisement for the availability of freezening facilities at the Federation not much favourable response was seen from the private processing, canning and exporting units. The Annual Report points out two distinct reasons for the situation. Firstly, it was due to the fact that earlier freezing plant was not in running condition for sometime, which might have frightened the private parties not to risk their stocks with Federation's freezers. Secondly, due to the non-availability of the requisite type of freezer facilities at the Federation private parties might not have responded to the advertisement of the Federation. Consequently, to maintain the market equilibrium and to provide fair prices for the mechanised boat owners on their prawn landings the Federation was said to have itself resorted to maintaining the freezing facilities even at a loss.

Fifthly, the Annual Report states that due to the very reason mentioned in cause fourth above, the Federation resorted to canning and freezing on its own account. Owing to heavy purchases made to support the sales price of prawns the canning and freezing activities were pursued even at a loss. This had to be done at a time when the prices of canned and frozen sea foods in international markets were not very favourable.

Sixthly, it was pointed out that the increase in the prices of diesel and lubrication oils, spare parts, etc., in some cases steep rise, had its own impact on the mechanised fishing industry. Consequently, the Federation's sales volume and also the profit margin were lesser than what they would have been without such rise in prices.

Steps Undertaken:

As could be seen in the Annual Report for 1974-75, the management of the Federation is aware of the danger, the extent and the causes for the losses. The management has chalked out certain measures to avoid losses in the coming years.

The first natural step has been to attempt to tighten the belt around administrative costs. For that matter, the salaries of staff paid during 1974-75 was lesser than the budgetted provision. Similar cost reduction measures have been put into practice in several fields.

Secondly, steps have been taken to maintain the freezing facilities in running condition and some new types of freezers, for example, "Ksheviner" type, have been installed so as to provide better and guaranteed services to the private processing, canning and exporting units.

Thirdly, stringent measures have been taken to recover the interest dues from the members. In certain cases the boats of the defaulting and erring members have been attached and interest dues have been recovered. This, it is stated, has negated the presumptions of some of such boat owners who subconsciously anticipated the writing off of the loans and interest dues. For the year 1975-76, the Federation has budgetted to recover as much as Rs.20 lakhs from interest dues.

The Federation has budgetted to earn a profit of Rs.7. lakhs during the year 1975-76. This target is mainly based upon a proper recovery of interest dues and the estimated earnings of about Rs.1.25 lakhs from the canning and ice plants. Other areas of earnings are budgetted at, more or less, at the same level as in 1974-75.

Chapter VI

GOVERNMENT AND FISHERIES DEVELOPMENT

The State did not have any marine resource until the re-organization of states in the year 1956. With the re-organization the two coastal districts of north Kanara and south Kanara were added to the state's boundaries. Therefore, until 1956, the development of fisheries in the state was confined to inland fresh waters. Because of the limited activities there was no separate department and the Department of Animal Husbandry with a fishery section looked after the developmental schemes of the fisheries in the state. In the year 1957, a separate Department of Fisheries was established and this has been headed by the Director eversince.

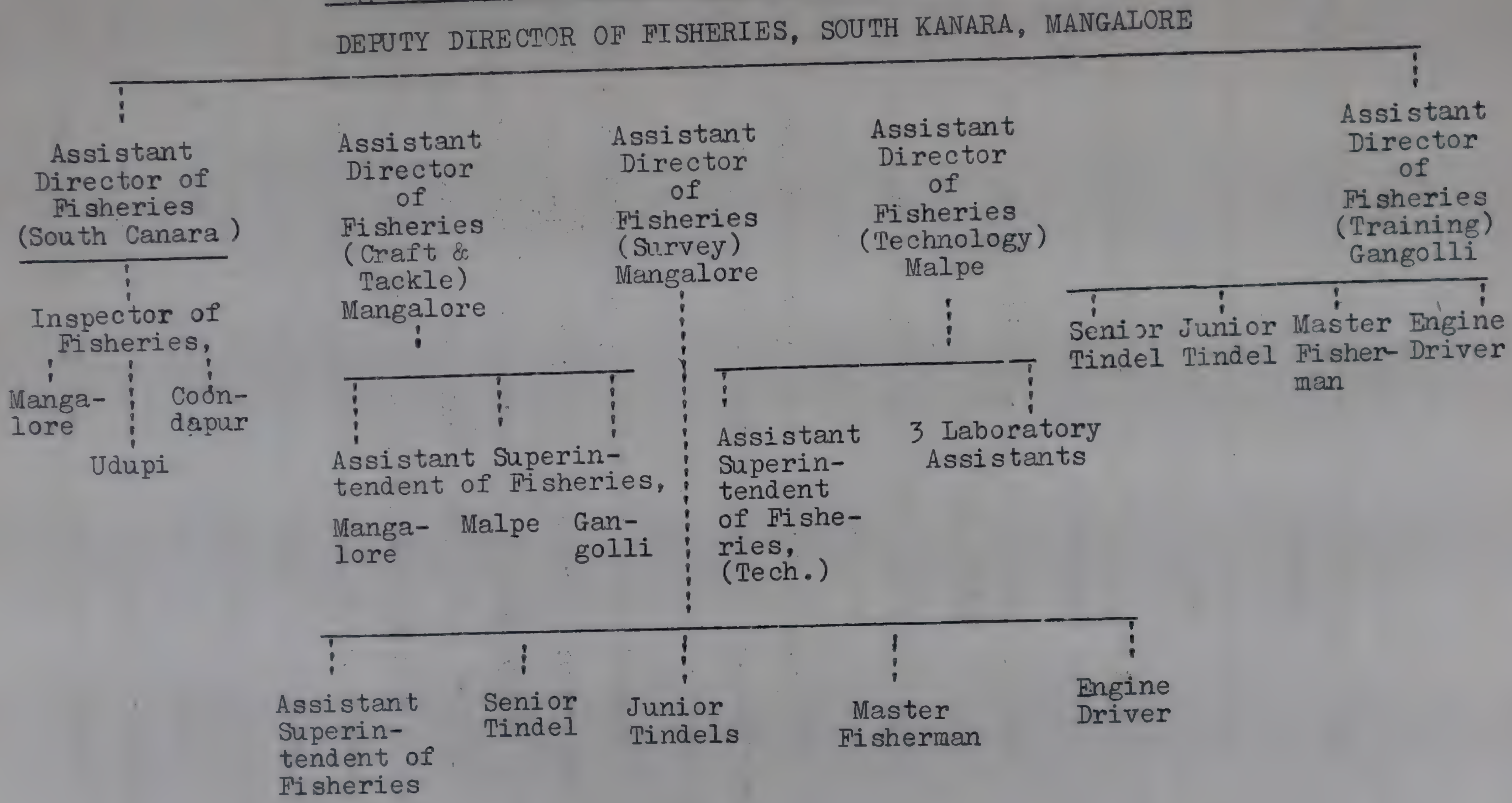
The Fisheries Department has a Deputy Director in charge of its division in South Kanara district. The office of the Deputy Director of Fisheries, South Kanara, is located at Mangalore. The Deputy Director is directly under the administrative control of the Director of Fisheries, Bangalore. The duties and responsibilities of the Deputy Director are technical as well as administrative. He is in overall charge of the implementation of both plan and non-plan schemes in the district and he has to issue necessary technical and administrative instructions to the staff for executing the schemes, supervise and guide them in their work. He has the following five Assistant Directors of Fisheries working under him.

1. Assistant Director of Fisheries (South Kanara), Mangalore.
2. Assistant Director of Fisheries (Craft & Tackle), Mangalore.
3. Assistant Director of Fisheries (Survey), Mangalore.
4. Assistant Director of Fisheries (Technology), Malpe, and
5. Assistant Director of Fisheries (Training), Gangolli.

The organisational chart provides a clear picture of the entire staff of the Fisheries Division (S.K.) located at Mangalore.

Since 1957, the Department has played a significant rôle in alround development of fishery industry in the district. It pioneered the mechanised fishing and the modern preservation facilities. With the help of F.A.O. and such other world organisations it demonstrated the feasibility and suitability of mechanised fishing in the district. It established mechanised boat construction yards. Subsidies on mechanised boats were channelised through the department and it selected the persons to allot these boats. It had established a chain of preservation units with ice plants, cold storage plants, freezing and frozen storage plants.

Organisational Chart, Fisheries Division, South Kanara


DEPUTY DIRECTOR OF FISHERIES, SOUTH KANARA, MANGALORE
Assistant Director of Fisheries (South Canara)
Inspector of Fisheries,
Mangalore
Udupi
Coondapur
Assistant Director of Fisheries (Craft & Tackle) Mangalore
Assistant Superintendent of Fisheries,
Mangalore
Malpe
Gangolli
Assistant Director of Fisheries (Survey) Mangalore
Assistant Superintendent of Fisheries
Senior Tindel
Junior Tindels
Master Fisherman
Engine Driver
Assistant Director of Fisheries (Technology) Malpe
Assistant Superintendent of Fisheries, (Tech.)
3 Laboratory Assistants
Assistant Director of Fisheries (Training) Gangolli
Senior Tindel
Junior Tindel
Master Fisherman
Engine Driver

In nutshell, the department had prepared the foundation for a diversified and modern fishery industry in the district. It maintained a chain of curing yards and distributed salt at subsidised prices.

The department has been supervising the Fishermen's Co-operative Societies in the district. There is a special section in the department to look after 34 such societies. It has its own inspectors for this purpose.

Hitherto, the department was managing the 3 Fishery High Schools, 18 Fishery Higher Primary Schools and 6 Fishery Primary Schools. In 1974-75, these schools had a total student strength of 7,188 and 205 sanctioned posts teachers. However, since 1-4-1975, control of these schools has been handed over to the Education Department.

The department maintains 40 fishery roads. The details of 32 such roads maintained by the P.W.D. as on 1-4-1975 is provided in Appendix IV. These roads link the important landing centres and beach-heads with the main roads and facilitate the transportation of fishes. The total length of these roads is 71 kms. It also financially helps the Panchayats to build fish markets and fish godowns.

In times of distress the department helps in the distribution of relief to fishermen.

Some Development Schemes:

During the planning era, especially after second Five Year Plan, many development works have been undertaken by the government for the development of marine fisheries. During the Fourth Five Year Plan alone the total amount of subsidies provided by the government to the fishery industry of the stat as a whole was Rs.10.69 lakhs. Major portion of these subsidies was naturally disbursed in south kanara district due to the predominance of fishery industry in this area.

In the Fifth Five Year Plan period several schemes have been taken up for implementation. Under Marginal Farmers and Agricultural Labourers Scheme, which is being implemented in Coondapur and Udupi taluks, the fishermen have been given nylon and non-mechanical boats at subsidized rates. During 1974-75, 314 fishermen obtained such benefits and a sum of about Rs.50,000 was spent.

Under National Co-operative Development Scheme several Fishermen Co-operative Societies and the Federation have been provided with the subsidized fish preservation and processing equipment.

Under Employment Promotion Scheme, sponsored by the Government of India, it is planned to allot mechanised boats to about 50 youths trained in Fisheries Training Centre, Mangalore and Gangolli.

Some of the current central government sponsored projects on hand are construction of fish auction hall near wooden jetty in Moolki at a cost of Rs.4.00 lakhs; construction of a R.C.C. jetty at Gangolli at a cost of Rs.4.00 lakhs; water supply to boats at R.C.C. jetty at Gangolli at a cost of Rs.8,000 and water supply to auction hall at Malpe at a cost of Rs.8,000.

Fishermen Training Centres:

The first training centre was established at Mangalore in the year 1958 under the Second Five Year Plan Scheme, "Fisheries Education and Training" and this scheme was continued until Fourth Five Year Plan up to 31-8-1974. Since the inception of the scheme a total number of 1,037 fishermen were trained in mechanised fishing, usage of modern fishing gears, construction of nets and repairs, maintenance of boats, marine diesel engines, navigation, chart works, etc. The duration of training ranged between 6 and 10 months during which period a monthly stipend of Rs.75 to Rs.90 was being paid. Mechanised boats were allotted to some of these trained fishermen on loan-cum-subsidy scheme. In November 1974, this training centre was converted into a survey unit.

The second training centre was established in the year 1965 at Gangolli. The number of fishermen trained until 1974 at this centre was 300. However, in the year 1974-75, there were only 11 fishermen undergoing training at this centre.

Such a reduction in the number of trainees has been explained as due to the withdrawal of loan-cum-subsidy scheme under which the trained fishermen of the centre were provided with the mechanised boats.

Survey Unit:

The survey unit has been established only very recently in November 1974. As already seen, upon the expiry of the "Fisheries Education and Training" scheme in 1974, the training centre at Mangalore has been converted into the present survey unit. The objective of this unit is to aim at diversification of fishing methods in the district. Since its establishment the following activities have been undertaken by the unit:

i) Exploring new fishing grounds;
ii) Operation of different types of fishing gears; and
iii) Location of fishing grounds for prawns and lobsters.

Fisheries Technological Research Station:

The Fisheries Technological Research Station, Malpe, was established in the year 1960. Following are the objectives of the Research Station:

i) Rendering technological services to the fishery industry for proper utilisation of the fisheries sources.

ii) To probe into the problems faced by the fish processing industry.

iii) Innovations of economical methods and devices for utilisation of trace species of fishes.

iv) Disseminating proper technical know-how to the industrialists.

v) Finding out new improved technical methods in processing technology for the benefit of the fish processing industrialists.

From the year 1961 to 1966 the following works were undertaken by the Research Station:

1. Development of a process for extraction and purification of sardine oil which can be stored for a prolonged period.
2. Development of a process to produce semi-dried prawns which has become a highly preferred product in the market.
3. Devicing a method to produce fish meal from prawns shell waste and from squilla on a commercial scale.
4. Manufacture of a fish guano from sardines after a oil extraction.

The Research Station also undertakes laboratory analysis of industrial fisheries products and voluntary inspection of frozen and canned products for export.

It also undertakes preshipment inspection and quality control after organoleptic, bacteriological and biochemical analysis for the frozen and canned products intending for export. This station has earned from 1965 to 1970 a sum of Rs.30,906 as examination fees. The station has a pilot plant for production of shark liver oil and sardine oil. Veterinary grade liver oil is produced and consumed by the State Veterinary Department. From the year 1971 onwards the Station has undertaken the following works:

i) Bacteriological, chemical and organoleptic analysis of commercial products, viz., fish meal, fish manure, fish oil, fish liver oil and analysis of industrial water in addition to sanitary inspection and processing plant.

ii) Preparation of semi-dried prawns and prawns pickles.

iii) Studies on the possibilities of salt cured fresh fish as raw materials for reduction to fish meal.

iv) Shark liver oil extraction, purification and standardisation.

v) Studies on chemical treatment to increase the keeping quality of shark liver oil.

vi) Studies on self-life on the semi-dried prawns.

During the year 1974-75, this station has undertaken product development as a major item of works which forms a part of the programme of the trash fish utilisation. New products have been developed from the commercially available trash fish. The following consumable products have been evolved:

1. Fish spirals; 2. Fish diam and ants; 3. Prawn plates; 4. Fish protein biscuits; 5. Fish Essence capsule; 6. Fish soap flour; 7. Butter and breaded mackerel fillets; 8. Mackerel pickles.

A new process is being developed to produce fish flour out of trash fish. The institute bears programme for launching an extension service to the fish processing industrialists, of disseminating advanced technology on the improvement of quality standard of fish products.

The Fisheries Technological Research Station, Malpe has rendered substantial services for the growing fish and fisheries product industry.

Statistical Unit:

The statistical unit of this district plays a vital role in formulating policy matters planning and developmental works of the Fisheries Department. The unit is engaged in collection of fisheries statistics on marine fish landings and its value to study the annual income of the state and of fishermen. The unit also secures information regarding landing centres, raw materials available, etc. Some of the objectives of the unit are as follows:

i) Collection of statistics on production of canned fish, frozen fish and by-products like fish-meal, fish oil, fish guano.

ii) Assessment of the state income and the quantity available for internal consumption and export.

iii) Study of the methods and mode of utilisation of the landed catch, mode of transportation, marketing factors like demand and supply, consumption potentialities, import and export of fish by-products and foreign exchange earned.

iv) Collection of statistics on the commercial catches and its composition to study the fluctuation in landings of different varieties.

v) Collection of socio-economic data, viz., literacy, housing accommodation, per capita income of fishermen and the effect of developmental schemes on the economic condition of fishermen.

vi) Economic survey of mechanised boats.

Fisheries statistics in south kanara district is being collected by the Petty Yard Officer, Sub-Inspector of Fisheries, Fishery Enumerators under the supervision of Senior Statistical Assistant.

Diminishing Role:

Lately, the activities of the Department have been nipped off and it happens to be less active unlike it was earlier, especially before 1970. There are four specific reasons for this feature. Firstly, after the expiry of ARC scheme, the mechanised boats construction has considerably decreased. This has reduced the Department's work of distributing subsidies on mechanised boats. Secondly, the salt-subsidy has been withdrawn resulting in, practically, disbandoning of the curing activities in the Department's 15 curing yards. Thirdly, the establishment of Fisheries College at Mangalore, as a constituent college of the University of Agricultural Sciences, Bangalore, in the year

1969 and the increasing activities of Export Inspection Agency, seem to have corroded into the technological unit's works in the Department. Despite its pioneering research works in the fishery industry, the technological unit, which was one of the most active wings of the Department, has been eclipsed by the new institutions coming in a big way.

Lastly, the establishment of the Karnataka Fisheries Development Corporation in 1970 took away from the Department various preservation units, special transport vehicles, the boat building yards and such other business propositions. The establishment of the Corporation, more or less, took away from the Department the fisheries developmental activities and relegated it into a position of governmental office to implement whatever subsidy schemes are remaining or are forthcoming.

However, with the establishment of the survey unit very recently, the Department seems to be poised for reclaiming its past active and participative role in the development of fishery industry in the district, rather than to be a bystander in the process.

Establishment of Karnataka Fisheries Development Corporation:

The establishment of an exclusive agency in the year 1970 in Karnataka Fisheries Development Corporation by the government to deal with all-round development of the fishery industry in the state indeed constituted a step in the right direction. The main motive behind this measure was to secure financial assistance from the banks and such other financial institutions so as to avoid heavy dependence on the vagaries of budgetary allocations which was hindering the speedy growth of the industry. There was no greater scope to aid the fishery industry under the routine departmental rules and insufficient budgetary grants. The Corporation was patterned on the lines of Kerala Fisheries Development Corporation.

Due to the very special role ascribed for the Corporation a detailed study into its structure and its performance during the period 1970-71 to 1974-75 becomes very essential.

Chapter VII

KARNATAKA FISHERIES DEVELOPMENT CORPORATION

In the year 1970, the State Government established the Karnataka Fisheries Development Corporation for the integrated development of the fishery industry in the state. The Corporation has been incorporated under the Indian Companies Act, 1956 with limited liability. Its authorised capital is Rs.3 crores. In October 1970, it was formally inaugurated with its Head Office at Mangalore. However, it started functioning from January 1971.

Objectives:

The objectives of the Corporation are very broad and ambitious. Some of the salient parts of its Memorandum of Association are briefly presented below:

i) To take over and operate all or any of the ice plants, freezing plants, cold storages and fish transport vehicles set up by the Department of Fisheries and operate new ice plants and cold storages, freezing plants and other processing plants and to sell ice, lease refrigeration space and freezing and processing facilities required by the industry.

ii) To take over and operate all or any of the boat building yards set up by the Department of Fisheries and to establish and operate new boat building yards and servicing stations and to procure and supply marine engines, construct and supply or finance construction of fishing boats required for the industry and also undertake servicing and repairs of fishing boats.

iii) To carry out commercial fishing in territorial waters and high seas either independently or in collaboration with other agencies in India or abroad.

iv) To engage in processing of fish and fish products and trade in fish and processed fish and fish products within the country and export to foreign countries.

v) To promote the establishment or to establish and engage in the manufacture and sale of auxiliary materials required for the fishing industry such as tin cans, cartons, fishing gears, etc.

Capital and Assets:

As against Rs.3 crores authorised capital, the State Government contributed initially Rs.7.12 lakhs towards 7,120 equity shares of Rs.100 each. Apart from this, the following assets were transferred to the Corporation from the control of the Fisheries Department:

1. Ice cum cold storage and freezing plants:

	No.
a) Ice cum cold storage and freezing plants	5
b) Ice plant and cold storages	6
c) Ice plant	1
d) Cold storages	2
Total	14

2.	Boat building yards	2
3.	Refrigerated trucks	4
4.	Insulated trucks	4
5.	Fishing trawlers	2

The Government's contribution to Corporation's share capital had increased to Rs.21 lakhs by 30th June 1975. Current capital is about Rs.94 lakhs of which Rs.81 lakhs is the value of fixed assets and Rs.13 lakhs working assets. The borrowings from banks is about Rs.4 lakhs.

Ice, freezing and cold storage play crucial role both in preserving the highly perishable fish and in processing it into sea-foods. The present number of such plants under the Corporation, their location and capacities are listed in Table 23. As can be seen from the table the major ice, freezing and cold storage capacities of the Corporation are located in South Kanara district. 51 out of 72 tonnes ice making capacity, 27.5 out of 42.5 tonnes of freezing capacity, 140 out of 197 tonnes fresh fish storage capacity and as much as 800 out of 850 tonnes of frozen storage capacity of the Corporation are located in various centres of south kanara district.

Table 23: Preservation Plants of the Corporation.

Sl. No.	Location of the plant	Capacities in tonnes. Ice Making	Freezing	Fresh Fish Storage	Frozen Storage
1.	Ice Cold Storage & Quick Freezing Plant, Mangalore	5	2.5 + 2.5	30	200
2.	Ice Cold Storage & Quick Freezing Plant, Kulai	10	5 + 2.5	30	200
3.	Ice Cold Storage & Quick Freezing Plant, Gangolli	10	5 + 2.5	30	200
4.	Ice Cold Storage & Quick Freezing Plant, Ullal.	10	5 + 2.5	30	200
5.	Ice Cold Storage & Quick Freezing Plant, Karwar.	15	10 + 5	50	50
6.	Ice Plant, Coondapur	2	-	-	-
7.	Ice Plant, Bhatkal	4	-	-	-
8.	Ice cum Cold Storage, Kaup	5	-	10	-
9.	Ice Plant, Moolki	4	-	-	-
10.	Ice Cum Cold Storage, Manur.	5	-	10	-
11.	Ice Plant, Kumta.	2	-	-	-
12.	Cold Storage, Mercara	-	-	4	-
13.	Cold Storage, Hassan	-	-	3	-
	Total	72	42.5	197	850

Source: KFDC, A Note on the Progress Achieved, 1975.

Achievements Listed:

The Corporation has listed certain achievements in its operation between 1971-74. They are as follows:

1. All ice plants, cold storages and freezing plants which were not operating formerly as viable units were reorganised to work on commercial lines with continuous improvement in their working results.
2. Three contact plate freezers were added to the Ullal, Kulai and Gangolli plants (the last one imported from Norway) considerably improving the production capacity of these units.
3. One obsolete freezing tunnel of Mangalore freezing plant was converted into an additional frozen fish storage by the engineers of the Corporation themselves.
4. A 100 tonne frozen fish storage which had been left half completed was completed and commissioned by the engineers of the Corporation themselves.
5. Peeling sheds were added by the Corporation to the Ullal, Mangalore and Kulai plants to make export production in these plants more hygienic.
6. The Corporation has received appreciation for the quality of its products exported to Japan and U.S.A.
7. The Corporation has earned during the last four and a half years foreign exchange to the tune of about Rs.92.66 lakhs for the country.

8. The Corporation has opened 20 retail fish stalls in Coorg, Mysore, Bangalore, Shimoga and Hassan districts. Under "COLD CHAIN" programme to market frozen fish.
9. Five 32' size mechanised boats have been allotted to trained fishermen on Hire Purchase Basis.

Some other factual indicators of progress of the Corporation are listed in Table 24. Only provisional data are available on the working of the Corporation for the year 1974-75. Hence, the progress has to be guaged from the data up to 30-6-1974.

Turnover, during 1971-1974 period increased from Rs. 9.46 lakhs to Rs.46.55 lakhs. Nearly 3½ times increase is seen in ice production. In the preservation of fresh fish increase is more than 4 times between 1971 and 1973, but a steep reduction is seen between 1973 and 1974 from 3,827 tonnes to 1,383 tonnes. Little over 100 per cent increase in the freezing of round fish is observed between 1971 and 1974. Freezing of fish fillets which was nil in 1971 was 43 tonnes in 1974, but it was lesser by one tonne over 1973.

Direct exports increased from a small value of Rs.2.10 lakhs in 1971 to an appreciable amount of Rs.33.74 lakhs in 1973-74. Similarly, indirect exports, through leasing out facilities, increased more than 4 times from Rs.44 lakhs to Rs.185 lakhs. The number of fish sales centres increased from 5 to 20 over the period.

Table 24: Some Indicators of Progress of the Corporation since 1971.

Sl. No.	Particulars	I Financial year 1-1-71 to 30-6-71	II Financial year 1-7-71 to 30-6-72	III Financial year 1-7-72 to 30-6-73	IV Financial year 1-7-73 to 30-6-74	V Financial year 1-7-74 to 30-6-75 (Provisional)
1.	Paid up share Capital by Govt. of Karnataka (lakh rupees)	7.12	12.12	14.12	15.00	21.00
2.	Turnover (lakh rupees)	9.46	23.84	44.00	46.55	42.00
3.	Quantity of ice production (tonnes)	2,510.00	7,144.00	7,728.00	8,544.00	6,425.00
4.	Quantity of fresh fish preserved (tonnes)	892.00	3,411.00	3,827.00	1,383.00	1,268.00
5.	Quantity of fish frozen (tonnes)	407.00	1,126.00	1,712.00	1,195.00	859.00
6.	Freezing of round fish (tonnes)	40.00	83.00	80.00	84.00	53.00
7.	Freezing of fish fillets for internal markets (tonnes)	-	18.90	44.00	43.00	24.00
8.	Direct exports (lakh rupees)	2.10	8.82	25.00	33.74	22.11
9.	Indirect exports (by leasing facilities)(lakh rupees)	44.00	94.00	135.00	185.00	90.90
10.	Number of fish sale centres opened.	5	10	20	20	20
11.	Financial results: Profit or loss before depreciation (lakh rupees).	-1.42	-3.11	-1.58	-4.97	N.A.

Source: KFDC - A Note on Progress Achieved, 1975.

As per the provisional data available for 1974-75 on the working of the Corporation, a decrease is observed in almost all the business operations, such as turnover, quantity of ice production, quality of fish preserved, quantity of direct and indirect exports.

Financial Results:

As can be seen from the Table 24 the Corporation has been financially in the red eversince its inception. The losses which were Rs.1.42 lakhs in 1971 increased to Rs.4.97 lakhs in 1974. However, it should be added here that actual losses would be much greater if the depreciation on assets transferred from the fisheries department were to be provided for and if the pension and such other contributions towards the employees on deputation from the government services, who constitute about two-third of the staff of the Corporation, are to be finally paid by the Corporation. On the issue of assets the evaluation has just recently been finalised. But the Corporation has requested the government to waive the depreciation charge, firstly because, it is stated, the assets were quite old and were nearly being written off at the time of their transfer to Corporation in 1970-71; and secondly, because such a provision, if were to be made, would be a heavy financial burden on the Corporation, which is already incurring losses. In the case of pension, leave salary and such other contributions towards the deputed employees, which was estimated at Rs.3.00 lakhs in Annual Report for 1973-74, repeated requests have been made to government for waiving such responsibility of the Corporation. The Annual Report for 1972-73 states that similar request to the Secretary to Government of Karnataka, Social Welfare and Labour Department on an earlier occasion had been turned down. However, no final decision has yet been taken nor any provision for such contingent liabilities made. Consequently, it is true that the figures for losses as shown by the Corporation are on lower side than what would have been as per the normal accounting practice.

Causes for Losses:

It would be questionable whether profit making was an objective of KFDC, an argument which is routinely put forth in defending each and every loss incurring public sector undertaking. By now, this argument has worn out in the context of new role ascribed for the country's public sector and its loss incurring prerogative has to be seriously thought over. In interviews with top officials of the Corporation some areas of and causes for losses were identified. Annual Reports for respective years also shed some light on this issue. Some of the said causes for the losses are listed here.

1. Trawlers and Deep Sea Fishing: It was pointed out that the two trawlers, "Chamundi" and "Vedavathi", meant for deep-sea fishing, one of the objectives of the Corporation, were one of the leading contributors to total losses. The

operational details of these two trawlers are furnished in Table 25.

Table 25: Operational Details of Two Trawlers of KFDC.

Details	Particulars for 1972-73 for both the Trawlers	Particulars for 1973-74		
		Vedavathi	Chamundi	Total
Number of trips made	12 daily trips	3 daily + 4 long	4 daily + 20 long	7 daily + 24 long
Quantity of Prawns caught (in kgs.)	120	417	934	1,351
Quantity of fish caught (in kgs.)	12,400	995	32,492	33,487
Amount realised by the sale of Prawns and fish (in rupees)	9,574	1,338	20,717	22,055
Lease amount of Vedavathi (in rupees)	148,750	64,097	-	64,097
Total Revenue realised. (in rupees)	158,324	65,435	20,717	86,152

Source: KFCD, Annual Report for 1973-74.

As can be seen from Table 25, major portion of the total revenues was realised by leasing out Vedavathi. During 1973-74, two lessees, one after the other, preferred to discontinue their lease and consequently Vedavathi had to remain in docks along with Chamundi.

There had been continuous mechanical problems faced by these two indigenously manufactured trawlers ever since they were acquired by the Corporation in 1971. These mechanical troubles endangered their deep sea cruises and hence they had to be kept idle for quite long times. In the case of Vedavathi some major alterations had to be effected at a lost of over Rs.80,000 in 1973-74 at the request of the lessee to make her safer in deep sea and more economical in operation. Dry docking facility was also lacking at Mangalore, which further added to the idleness of the trawlers. It was pointed out that due to lack of this facility one of the two trawlers which had serious propellor-shaft defect could not be taken to the sea. Mangalore has no provision for workshop facilities for trawlers and such other big boats. There were only 4 such big trawlers here, two belonging to the Corporation and the other two to Government of India, Customs and Survey. Even drinking water was not properly available for such boats nor proper berthing facility unlike at Cochin where water is made available by pumps like diesel and petrol, at the jetties.

To add to these inadequate infra-structural facilities for these trawlers, there was shortage of trained and certified hands, like Skipper and Engine Driver. The Annual Report of the Corporation for 1972-73 records how the trawler Chamundi had to be stationed at Karwar as both the Skipper and the Bosun had remained on prolonged leave and as to how there were no applicants for these posts despite repeated advertisements in the newspapers. By the time the Bosun and the Skipper returned from their prolonged leave the fishing season was over. The Skipper's salary was fixed in the range of Rs.700 - 1,000 and that of Engine Driver's in Rs.450 - 900 range, and they were entitled to an incentive scheme of 20 per cent of the catches (provided the catch was above Rs.500 per day) to be shared by the crew. Yet, the certified hands did not show much interest for jobs with the Corporation.

In nutshell, it is the fact that the deep sea fishing is still in its infancy that had made these trawlers white elephants for the Corporation. The experiences of Kerala Fisheries Development Corporation and the Maharashtra Fisheries Development Corporation have been more or less similar in this respect.

2. Boat Building Yards: The two Boat Building Yards, one at Karwar and the other at Mangalore were also the major contributors to the losses, mainly due to under-utilisation of their installed capacities. The working of these two yards is presented in Table 26.

Table 26 indicates an improvement in the performance of the Corporation's boat building yards, as the total revenues increased from Rs.1.86 lakhs in 1972-73 to Rs.5.23 lakhs in 1973-74. However, there still existed idle capacity leading to substantial losses. Much of the orders for boats had to be "created" by arranging for finances through banks and by training those fishermen who were chosen to hire-purchase such boats.

Table 26: Performance of the Corporation's Boat Building Yards.

Details	Progress achieved during 1972-73.	Progress achieved during 1973-74.
Number of boats constructed or under construction:		
43½' boats	5	5
32' boats	2	6
15' Flat bottom boat	1	1
29' Plank bottom boat	1	-
Total revenue realised by sale of boats, service charges, repairs, etc.		
i) Direct revenue	Rs.1,62,249	Rs.4,52,640
ii) Indirect revenue	Rs. 23,887	Rs. 70,759
Total	Rs.1,86,136	Rs,5,23,399

Source: KFDC Annual Report 1973-74.

The boat building activity of the Corporation had to face a stiff competition from the similar activity of the Federation, which had longstanding record of experience, greater financial mobility and access and much closer contact with fishermen.

Labour troubles, especially at Karwar Yard, had been substantially responsible for losses. The troubles were traced to early days of the establishment of this yard and were becoming worse with the passage of time.

3. Obsolescence of Assets: It was pointed out that most of the plant and machinery transferred to Corporation from Fisheries Department had already been adequately old and utilised. Consequently, there were frequent break downs, costly repairs, idle capacities due to non-availability of requisite spares and all these added to lesser productivity and losses.

Until recently, the 4 refrigerated trucks of the Corporation were highly in demand from the private parties who transported their sea-foods to Cochin to be exported from there to overseas markets. Much of the demand for these trucks had ceased due to opening up of the New Mangalore Port. Also, these trucks had become obsolete and costly to maintain as they were bought in 1967.

4. Non-Development of Internal Markets: The Corporation maintains 20 sales centres in various parts of the state, as a "Cold Chain" for the distribution of frozen fresh fish. The refrigerated trucks are now being used to transport fish to these centres. However, the consumers in most of these centres are not yet accustomed to the idea of using frozen fresh fish. Consequently, the sales volume does not sustain the cost of maintenance of most of these centres leading to losses.

5. Competition in Export Market: Even though there has been a considerable increase in the export earnings the margin of profits has been very low or even nil. The reasons are very many. For example, it was stated that the prices are dictated by the importers in the international market, and there was severe competition from the private exporters in the district, who not only have longer records of export business but also cater to the much required "personal touch" in these export markets. The ever fluctuating freight rates further reduced whatever remained of the profit margin, as sales prices are pre-determined.

Hence, the exports which account for greater part of the Corporation's financial turnover, contribute practically nil to its profitability.

6. Seasonal Nature of Fish Industry: It is pointed out that the entire business of the Corporation is far different from any other public sector undertaking. Corporation is dealing with a business which is highly seasonal in its character and is such that it has a telescopic effect on every other activity connected with it. For example, even in the normal fish landing year, the ice, cold storage and freeze storage capacities will be utilised only for a minimum of only 6 - 8 months. The exporters cannot afford to keep their stock in cold storage at the cost of high bank interest rates, fluctuating international price trends and substantially heavy storage costs. However, with a fall in

the landings of fish not only the capacity utilisation of these facilities is badly affected but also, its impact telescopes into the demand for boats built in the Corporation's boat yards. But the Corporation is compelled to maintain its staff on maximum capacity utilisation level, as otherwise at the time of peak season hands will not easily be available and that may mean under-utilisation of capacity and sure losses.

7. Low Profit Potentiality of Hired Facilities: The provision of ice, cold storage and freeze storage and the refrigerated and insulated trucks to the private parties does not allow any scope for a substantial increase in their hire charges. As it is the private parties at present have been complaining of 'high' charges for these facilities. The charges have been revised keeping up with their cost structure. These facilities are said to be breaking even their costs and returns. To expect these facilities to cover up huge losses piled up by other activities of the Corporation is completely ruled out as it does not withstand to simple market economics of these facilities.

8. Administrative Straight-Jacket: One of the purposes of the establishment of the Corporation was to drive away from the routine rigmarole of the departmental rules and regulations and to allow the functioning of the development activities of fisheries in an autonomous environment.

However, it is stated that instead of autonomy, the Corporation, being a wholly state-owned enterprise, finds itself in a situation of multiple control or an administrative straight-jacket. Even now more than two-thirds of the personnel of the Corporation are deputees from the governmental departments. The Corporation does not possess much liberty in the recruitment of its own staff. All these lead to a "slack" atmosphere, which is not conducive to business oriented work of the Corporation.

Even the salaries payable to such a staff are based on their previous jobs and have nothing to do with the financial viabilities or otherwise of the Corporation.

9. Initial Set-backs: The starting of the Corporation in 1970 coincided with a failure of prawn season. The prawns, as has already been seen, are major commercial species in fishery industry of the district. Thus, the Corporation had to start with a bad season, which also had affected its boat building activities and utilisation of storage capacities. Even the second year, 1971-72, was stated to be equally bad. The third year, 1972-73, registered some favourable trend in the landings of fishes, particularly the prawns. By this time, the initial set-back suffered by the Corporation in previous two years had started its vicious circle of effects on its finances, and the mould had been wrongly cast.

Steps undertaken to Minimise Losses:

Hitherto, following steps were stated to have been undertaken to minimise the losses and to put the Corporation financially at least on an even-keel.

1. Disbandening of Crew of One Trawler: As the trawlers were one of the leading contributors to the losses, the operation of one of the trawlers has been stopped and the crew has been disbandened during the year 1974-75. This would save the Corporation of the huge maintenance cost on the trawler.

2. Closure of one Boat Building Yard: The boat building yard at Mangalore had been reluctantly closed down from 1-4-1974 as a non-viable unit. The surplus staff and workers were retrenched after paying the requisite compensation.

3. Intensification of Sales, both in Internal and International Markets: Steps have been undertaken to increase the sales volume in the internal markets of the frozen fresh fish by campaigns, advertisements and demonstrations at exhibitions. Similarly, attempts are being made to further increase the exports.

4. Economy in Administrative and other costs: It was stated that steps have been taken to reduce unnecessary additions to costs. Appointments for new posts were said to have been taken to streamline plant utilisation and administrative efficiency.

5. Establishment of One-man Expert Committee: In the beginning of the first quarter of 1975, the Government of Karnataka appointed a One-man Expert Committee headed by Shri Devdas Menon, Director, Integrated Fisheries Project, Cochin. It was to enquire into the technical and other affairs of the Corporation and to recommend suitable remedial measures. The report of this Expert Committee and the actions on its recommendations are awaited.

6. Increase in the Hire Charges: In tune with the changed cost structures of the facilities offered by the Corporation, the hire charges for freezing and other facilities have been increased by stages. The recent increase has been effected from 1st October 1975.

Proposals under Consideration:

The measures already undertaken cannot be considered as long-run remedies to the malady of financial losses of the Corporation. At best, they are the short-run stop-gap arrangements to minimise the losses. Losses in the case of a public sector undertaking are not only injurious to the prestige of the organisation and slackens the psychological working atmosphere for its staff, but they also indicate lop-sided planning of the functions of such enterprises. If the profit motive was not implied in their setting up, then there should have been a clear-cut provision made to recoup their recurring annual losses. In the case of the

Corporation the government seems to be increasing its contributions to Corporation's share capital with every increase in the enterprise's annual recurring losses. Such methods are not conducive to the healthy growth of the enterprise and certainly cannot foster the achievements of the high objectives placed before it.

Attention was drawn, as if it was solace, to the financially miserable performance of the Kerala Fisheries Development Corporation, which was probably the first of its kind to be set up about nine years ago. Kerala Fisheries Development Corporation has a wide variety of functions, including fishmeal and oil plant and nylon net factory. Its capital as on 31-3-1974 was about Rs.1.07 crores. However, its net-worth in 1973-74 stood at -159.92, with total losses during the period of the working outstripping its total paid-up capital by one and a half times. It has been suffering from an acute shortage of working capital, due to which many of its commercial activities, like boat building, deep-sea fishing, had to be foregone adding up further to their accumulated losses. The performance of Maharashtra Fisheries Development Corporation, during its two years of working, up to 1973-74 was not satisfactory, having suffered a loss of Rs.10.43 lakhs in the year 1973-74 alone. Its paid-up capital being only Rs.4 lakhs. Comparing the performance of Karnataka Fisheries Development Corporation with these two similar concerns and feeling that it has fared better, is not just.

Comparison should always be with "better ones".

On discussions with the top officials of the Corporation, some constructive proposals to be considered in future were brought to light.

1. Distinction between the Development and Commercial Activities: With more than four years of working experience and their financial results, the Corporation's activities could now be clearly divided into two clear-cut categories, viz.,

i) Those activities constituting developmental in nature, requiring research pioneering efforts, large and long term capital investments and not much opportunities to expect profits at least in the short-term. Examples of such activities could be deep-sea fishing, internal market development for frozen fresh fish. With some exceptions, even the boat building could be included in this category, at least in the initial stages of such enterprise; and

ii) Those activities being commercial in nature with immediate prospects of making profits. Examples of this category could be, selling ice, hiring of frozen and cold storage capacities, hiring out of transport vehicles and the export marketing.

The purpose of such categorisation is to enable the government to determine the quantity of financial subsidy

entrance into the export field has enraged the private packers and exporters, the people whom the Corporation intends to help and patronize in other infrastructural facilities. Many of the efforts which are at present not so profitably channelised on export field could easily be concentrated on other activities, particularly on development activities. Then there is the centrally sponsored Marine Products Export Development Agency at Cochin, which is exclusively dealing with export development.

This argument does have some strength. However, only when exports by the Corporation could be stopped without any adverse effects on the overall exports of such sea-foods and without any danger of misuse of the situation by the private exporters, that such a step should be taken. A healthy competition between the private and public sector always goes in favour of both these sectors and monopoly situation for either would be injurious to such a sector in the long run.

Private Sector's View of the Corporation:

One of the questions posed to the private sector processing and exporting units in their survey questionnaire was to express their opinion on the "role of the Corporation in the overall development of fish industry". It is worth noting that majority of these units were unhappy over the performance of the Corporation. Many of them felt that the Corporation was giving them "no help"; some others stated that it had "no active participation".

Such opinion might be because of two reasons. Firstly, they might have too much expectations from the Corporation. Secondly, it might be because of the Corporation's entry into the export market, thereby providing a better price to the fishermen and better quality sea-foods to the importers might have weakened the stronghold of these private parties.

However, there were some exporting units which had good opinion about the Corporation and felt that its performance was satisfactory. Some having been satisfied even suggested for greater role of the Corporation, like the provision of mini-insulated vans.

Future Plans:

The Corporation has chalked out certain schemes to be taken up under the Fifth Five Year Plan. These schemes are as follows:

1. Establishment of fish meal and oil factories at Kulai and Gangolli in the South Kanara district, and Karwar in North Kanara district, on the capacity of 5 tonnes of fish meal per day (raw material intake of 30 tonnes per day), at each factory with investment of about Rs.10 lakh per plant.
2. Establisment of new ice-cum-cold storage and freezing plant at Honavar/Kasargod in North Kanara district and Malpe in South Kanara district within an investment of about Rs.4

lakhs and Rs.10 lakhs respectively in the fishing harbour area.

3. Setting up additional ice plants at Mangalore, Kulai and Gangolli.
4. Purchase of deep-freezers for retail fish stalls to expand inland frozen fish marketing activities.
5. Deep sea fishing projects by introducing 14 metres, 18 metres and 23 metres size trawlers at an approximate cost of over Rs.4 crores.
6. Establishment of seed production and rearing unit. (Inland fisheries) in an area of 30 acres at Bhadra Reservoir at a cost of Rs.39.80 lakhs during the year 1978-79.

The above schemes are proposed to be financed by loans from scheduled banks and other financial agencies. It should be noted here that the Corporation has hitherto availed only about Rs.4 lakhs loans from commercial banks and it was for boat building works. One of the objectives of the setting up of the Corporation was to exploit this source of finance to a greater degree. It is to the hoped that at least in the future the Corporation would expand its financial base and that it would play a more active role in the fishery industry of the district in particular and the state in general.

Chapter VIII

FINANCE

In modern days of advanced business techniques and industrial technology finance constitutes one of the pre-requisites for the establishment and successful operation of any business endeavour. Fishery industry cannot be an exception to this general rule. On the contrary, with high cost of mechanised boats and fishing equipments such as nets, high cost of preservation and processing equipments, high cost of special transport vehicles such as freezer trucks, insulated and semi-insulated trucks and large quantity of finance required for sea-foods export trade, fishery industry is a highly capital intensive industry. The nature of finance required in this industry varies from long-term for the acquisition of mechanised boats to short-term rate for the export trade.

An attempt is made here to consolidate the role of various institutions in financing the fishery industry in the district. Data were collected from the leading banks in the district by circulating a detailed questionnaire. Even though the banks covered under the study do not account for the 100 per cent non-governmental financing of this industry, their share was found to be very substantial. This, as a simple study would help in knowingthe situation in the financing fishery industry. The data with regard to governmental financing of this industry were collected from the

Fisheries Department.

The study is classified into four convenient groups, keeping in tune with the broad nature of financing of this industry. The groups are: Financing of mechanised boats, Financing of equipment and spare parts, Financing of preservation and processing units and Financing of export trade

A. Financing of Mechanised Boats

In Table 13, the trend in the growth of mechanised boats has been seen. It is necessary to remember that the number of mechanised boats which was less than 10 in 1958-59 increased to 864 in the year 1974-75. With high costs of th mechanised boats the fishermen could not have bought these boats on their own. It is the indirect financing in the for of subsidies by the government and the direct financing by t other institutions that has helped the phenomenal increase i the number of the mechanised boats.

1. Indirect Government Financing:

The government started providing subsidy for the acqu sition of mechanised boats from the year 1962-63. Till 1965 66, the subsidy consisted of 50 per cent of the cost of cheapest engine, and since then the quantum has been reduced to 25 per cent of the cost of the cheapest engine. Under MY Scheme, fishermen trained at the training centres were allotted the subsidised boats. Under the M.D. engine schem such trained fishermen were provided with only motor diesel engines on the loan-cum-subsidy basis. Under the ARC scheme the funds were channelised through the Federation. In all, 71 boats under MY schemes, 106 boats under loan-cum-subsidy scheme, 240 boats under ARC scheme, aggregating to 417 boats were thus financed. Apart from these, subsidies on 436 boats worth Rs.37.79 lakhs were provided to the private parties to acquire mechanised boats. The year-wise details of such subsidies are provided in Table 27.

Table 27: Details of Mechanised Boats Subsidies granted by the Government during 1962-63 to 1974-75.

Year	Number of private parties covered	Schemes	Number of boats
1962-63	1		
1963-64	-		
1964-65	10		
1965-66	17		
1966-67	6		
1967-68	-		
1968-69	-		
1969-70	99		
1970-71	170	1. MY scheme	71
1971-72	20	2. Loan-cum-subsidy scheme.	106
1972-73	20	3. ARC scheme	240
1973-74	22	4. Private parties	436*
1974-75	71	5. Others	11
Total	436*	Total number of boats in the district as on 31-3-1975.	864

* 436 boats include 106 boats financed under State Bank of Mysore scheme.

Data Source: Assistant Director of Fisheries (Craft & Tackle), Mangalore.

2. Financing by Federation:

The South Kanara District Fish Marketing Federation has been the fountain-head of financing of mechanised boats in the district. The Federation has channelised the whole of ARC and SBM schemes of financing. It has also channelised finance for many diesel engines under MY mechanised boat scheme.

i) ARC Scheme: A scheme to finance the fishery industry by the Agricultural Refinance Corporation, popularly known as ARC scheme, was introduced in the year 1968-69. The total funds sanctioned under this scheme was Rs.95.25 lakhs. The funds were to be utilised for the following purposes:

a) Boat building and service station
b) Boat financing
c) Purchase of special vehicles to transport fish, e.g., refrigerated trucks
d) Purchase of cold storage
e) Purchase of canning and processing machinery.

The major portion of the ARC scheme funds were earmarked and utilised for the financing of mechanised boats. A total of 240 mechanised boats were financed under the scheme in the spaced manner - first year 60 boats, second year 80 boats and the third year 100 boats. More than Rs.90 lakhs were utilised in financing these 240 mechanised boats. Under this scheme 4 to 5 fishermen were made partners to each boat and they were trained by the training centres before giving the possession of the boats. Totally as many as 1,200 fishermen were benefitted by the scheme.

ii) SBM Scheme: The State Bank of Mysore had two schemes. The first scheme was implemented in the year 1969-70 and covered 93 boats. Second scheme was implemented in 1973 covering 13 boats. The total financial commitment was Rs.67.81 lakhs. The Federation has been acting as a guarantor for the performance of these 106 boats. The bank had channelised the funds through the Federation.

3. Financing by Banks:

The commercial banks in the district have financed the acquisition of mechanised boats. The quantum of finance and the number of boats so financed by five leading banks of the area which responded to our questionnaire are provided in Table 28.

Table 28: Mechanised boats financed by Five Leading Commercial Banks between 1969-74:

Sl. No.	Name of the Bank	Amount in lakh rupees	Number of boats
1.	Syndicate Bank	107.84	334
2.	State Bank of Mysore	67.81	106
3.	Vijaya Bank Limited	28.20	80*
4.	Karnataka Bank Limited	22.00	45
5.	Canara Bank	18.64	36
	Total	244.49	601

* Includes 17 mechanised boats valued at Rs.5.48 lakhs financed by the Bank up to March 1975.

Data Source: Respective Banks.

As could be seen from Table 28 the five leading commercial banks of the district amongst themselves have financed 601 mechanised boats worth Rs.244.49 lakhs. The Syndicate Bank, which is also the Lead Bank of the district, emerges as the largest financier with a financing of Rs.107.84 lakhs involving 334 boats. The State Bank of Mysore occupies the second place with 106 boats and Rs.67.81 lakhs. The crucial role of bank financing of the mechanised boats can easily be understood as out of 864 mechanised boats in the district in 1975 as many as 601 were financed by only five banks. Of the remaining 263 mechanised boats, as already seen, 240 mechanised boats were financed by the ARC scheme through the Federation. This leaves only 23 mechanised boats which could have been financed by other banks or financial institutions.

However, one pertinent doubt arises from the data supplied by the banks. As it is seen, the total number of boats financed by these five banks is 601. But the increase in the total number of such boats (Table 13) between 1967-68 and 1974-75 is only 564, and this includes 240 boats financed under ARC scheme. Such a discrepancy in the total number of boats could be either due to the lacunae in the information provided about south kanara district or it could also mean that there are mechanised boats in the district which have not been recorded in the Fisheries Department.

Rate of Interest and Security:

Only State Bank of Mysore provided the information about the rate of interest charged on the financing of mechanised boats. The bank charged an interest of 9¼ per cent for its 1969-70 scheme and 15 per cent for its 1973 scheme. Only this bank provided other details about the advances. The financial assistance by the bank was 75 per cent of the value of the boat including accessories. The balance of 25 per cent of the value of the boats was met by the government by way of subsidy. Besides, the government have also guaranteed these advances, in addition to performance guarantee by the Federation.

However, as the lending rates of all the commercial banks are regulated by the RBI, it is to be presumed here that even other banks charged similar rates of interest on mechanised boat financing.

Experiences in Repayment:

Experience of the Federation in the repayment of the loans on mechanised boats by the fishermen has been very bad. As already seen the Federation has been forced to incur huge losses since 1970-71 partly due to non-payment of interests and instalments by the members. The accumulated losses of Federation for the period of 1970-71 to 1974-75 amounted to Rs.39.14 lakhs. The budgetted receipt of interest on this account for the year 1974-75 was Rs.25.92 lakhs, whereas the interest actually collected in this period was only Rs.4.88 lakhs. On the other hand, the Federation had to pay an interest of Rs.14.19 lakhs in the said period to those institutions which had helped in financing of the mechanised boats.

During the discussions with the Federation authorities several interesting features in this respect were revealed. It was stated that in financing of ARC boats the estimated average annual landings of each boat was put at around Rs. 27,000. Accordingly the Federation used to pay 30 per cent of the value of the catches of the mechanised boats to the owners in cash and the remaining 70 per cent of the value was settled after the adjustment of various credit facilities provided by the Federation, such as diesel oil, lubricating oil, fishing gears and spare parts. However, the experience of the past six years shows that the average annual volume of the catches by mechanised boats have been far less than the anticipated Rs.27,000. Consequently, the payment of interest on loans and the repayment of instalments have been erratic. Secondly, due to practical difficulties expressed by the fishermen, the cash payment on landings was increased by the Federation from 30 per cent of the value to 50 per cent. This along with the steep increase in the maintenance costs adversely affected the receipt of interest and instalments.

Apart from this, a few cases of malpractices by some fishermen were observed. These fishermen were found transferring their Federation financed boat catches to other boats on the high seas and showed little or no catches to the Federation. There were cases where some fishermen were found selling their catches to private parties through the back door to avoid the payment towards interest, instalments and the credit sales. Two things could have prompted such acts. Firstly, the lure of securing 100 per cent cash (even if the price paid was less than the prevalent market rates) as against 50 per cent cash paid by the Federation. And secondly, such fishermen might have borrowed money from the private parties as loan or advance against the catches and were made to fulfil their obligations.

It was pointed out that to a certain extent the mode of selection of fishermen for the grant to ARC boats has turned out to be defective, even though idealistic. This issue has already been detailed while dealing with the mechanised fishing in Chapter III.

The recovery position of loans under MY boat scheme as presented by the Annual Reports of the Fisheries Department, for 1973-74 and 1974-75 is shown in Table 29.

The recovery of loans under MY boat scheme was not very bad in the year 1973-74, as about 57 per cent of the loans due during the year were collected. The recovery during the year 1974-75 was very unsatisfactory as only 6 per cent of the loans due during the year were collected. In other words if the outstanding loans during the year 1973-74 was 43 per cent of the loans due during the beginning of the year, the same was as much as 94 per cent during the year 1974-75.

Table 29: Realisation of loans from MY boats:

Sl.No.	Details	1973-74	1974 - 75
1.	Number of boats involved	96	56
2.	Total loans due at the beginning of the year (lakh rupees)	9.73	5.68
3.	Total loans due for the collection during the year (lakh rupees)	9.03	5.45
4.	Total loans collected during the year (lakh rupees)	4.05	0.32
5.	Percentage of collection with reference to the figure under (3) above.	57	6
6.	Total loans overdue (lakh rupees)	4.99	5.13
7.	Total loans outstanding at the end of the year (lakh rupees)	5.68	5.36

Source: Annual Reports for respective years; Deputy Directo
of Fisheries, Mangalore.

Even the State Bank of Mysore, who have financed as many as 106 mechanised boats, expressed the opinion that their experience as financiers to this industry has "not bee an encouraging one". Under its 1969-70 scheme the loans wer to have been repaid within five years. The terms of sanction had expired in almost all the cases, but only 7 out of

93 groups of fishermen involved in the scheme had successfully liquidated their entire liability to the bank. The present outstanding balance in these accounts was Rs.43.33 lakhs (inclusive of overdue interest charges) as against Rs. 58.93 lakhs sanctioned in the 1969-70 scheme.

During the discussions with various government officers involved with the fisheries in the district one phenomenon was repeatedly emphasised, namely, under the existing financing pattern the "fishermen practically had no stake". It was stated that as the government provided 25 per cent of the engine value as subsidy and as the remaining cost of the boat was financed by other agencies like Federation or banks, the fishermen practically contributed nothing towards the costly boat. At the worst, these boats could be seized by the respective financing agency, but the fishermen lost only the quantum of instalment and interests already deposited. Therefore, it was felt that the fishermen lacked zeal and dedicated involvement in optimally utilising the boat capacities and paying back their debts. The situation is worsened due to the fact that the fishing season is spread over only 6-8 months of the year and the uncertain landings.

It was also pointed out that there was better performance of the fishermen who were financed by banks, other than State Bank of Mysore. It was stated that these banks insisted on some collateral securities or part contribution by the concerned fishermen. Hence it was stated that instances were found where the same fishermen with ARC or SBM scheme boats entrusted the fishing operations of such boats to "hired hands", whereas they themselves operated the other bank financed boats. Perhaps, the expectation of some of the fishermen was that the government finance or government backed finance could one day be written off and probably that is why there has been uncertainty and irregularity in the repayment. However, it should be added here that such instances are not very common. Apart from the State Bank of Mysore, other banks have not given out their experiences in this field.

September 1975 Incident:

In September 1975 the Fisheries Department observed that the season had started with bumper prawn catches, but the fishermen were not disposing their entire catches through the Federation. Keeping in view the worsening financial condition of the Federation it was thought necessary to enforce discipline among the fishermen. With the assistance of the police, on a particular day, the fishermen were barred from selling their catches to any party other than the Federation, as was required under the financing agreement. But, this well-intended measure of the Department ended in, more or less, a fiasco. There was suddenly a glut in the prawn market as the catches continued to be good for three consecutive days. To add to this, the failure of electricity suddenly cut back on the ice production in almost all the plants. Consequently, despite the best efforts of the Corporation and the Federation, not all the landings could be bought, and the private processing units also expressed their inability to buy due to lack of preservation facilities, especially the ice. All this created high resentment among the fishermen who had to face the drastic fall in the prawn prices, to one-third of the pre-enforcement price. All this forced the Department immediately to relent its enforcement of compulsory sale through the Federation.

This unhappy performance in realisation of loans against mechanised boats has to be seen in the light of the fact that the average landings of the prawn, the main purpose for which these boats are used, have considerably improved from only 4,031 tonnes during the five years of 1965-66 to 1969-70 to 6,332 tonnes in the next five years of 1970-71 to 1974-75 (Table 11). It is further to be noted that the trend in the average price of the prawns during the said period has shown a much more significant appreciation from Rs.977 to Rs.2,413 per tonne (Table 12). Thus, despite some variation in the annual landings of the prawns, the overall trend in their landings and prices especially during 1970-71 to 1974-75 are satisfactory. As to why such favourable factors have not reflected in the realisation of loans to mechanised boats is the question which should attract attention of the authorities.

It is also to be noted that at present, even during the peak prawn season, only about 50 per cent of the total mechanised boats of the district are accounted for in the fishing operations (Table 15). The other 50 per cent of the boats are either away in other parts of the country's coast and not accountable for their landings at home district or are idle.

B. Financing of Equipments and Spare Parts.

The mechanisation of fishing carries along with it the process of modern equipment and the spare parts to maintain operation worthiness of the mechanised boats and for higher exploitation of marine resources. These equipments are costlier than their traditional counterparts and are normally factory made. In a way, it would not be wrong if it were to be said that the introduction of the mechanised boats and the allied equipment has not only modernised the fishery industry but has also "monetised" this sector. Earlier, practically every equipment needed for this industry, such as wooden boats and nets were home made or locally made at the fishermen hamlets and did not involve much of "money" in the real sense. But with the introduction of mechanised boats this has undergone a change and the operation of these boats involves "operational costs" unlike their traditional country boats.

The Federation, as already seen, plays an important role in providing these equipments and spare parts to its members on credit basis. This is a sort of short-term financing. The sale of fishery equipment (mostly on credit) has seen a tremendous rise since 1956-57. The amount of sale of these items was a meagre Rs.15,397 in 1956-57, whereas in the year 1974-75, it was Rs.3.21 lakhs. However, the highest sale on this account was recorded in the year 1969-70 at Rs. 7.77 lakhs, followed by the year 1970-71 with Rs.7.03 lakhs. During the years 1956-57 to 1974-75, the Federation has sold equipment worth more than Rs.60 lakhs.

Similarly, the spare parts necessary to keep the mechanised boats operational were sold by the Federation to its members on short-term credit. The value of this head in 1963-64 was a meagre Rs.4,421 whereas in the year 1974-75, it had increased to nearly Rs.4 lakhs. Diesel oil and other lubricating oils were also provided by the Federation. The value on this account was a small figure of Rs.9,047 in 1960-61, but in 1974-75, it stood at Rs.11.52 lakhs.

The above short-term financing has gone a long way in helping the fishermen in the district to absorb new technology required for the modern fishing.

Apart from the Federation the 33 primary Fishermen Co-operative Societies have been catering to such a need of the fishermen. Normally, the credit limit of Rs.10,000 to each member at one time is maintained to finance the purchase of requisite equipments and spare parts. Societies in turn have borrowed funds from the government. As per the Fisheries Department's Annual Report for the year 1974-75, the Government had provided these societies a loan of Rs.80,250 to supply fishery requisites to its members. This loan was being promptly repaid as there was no overdues on this account in the year 1974-75. The outstanding amount on this account for the period was Rs.58,331 to be repaid in the future.

Some banks also undertook to finance certain equipments, especially nets. The Syndicate Bank, the Karnataka Bank, Ltd. and the State Bank of Mysore among themselves financed equipment worth Rs.5.58 lakhs during the 1969-74 period. The details are furnished in Table 30.

Table 30: Bank Financing of Equipments during 1969 to 1974.

Sl. No.	Name of the Bank	Purpose of loan	Amount (rupees in lakhs)
1.	Syndicate Bank	285 nets 5 floats	2.68
2.	Karnataka Bank, Ltd.	Boat accessories *	2.60
3.	State Bank of Mysore	Nets One purse seine net	0.30
		Total	5.58

* This amount is included in the second scheme (1973) of the bank in financing of 13 mechanised boats.

Date Source: Respective Banks.

As can be seen from the Table 30, once again the Syndicate Bank emerges as leading financiers of fishery equipments and accessories. It financed 285 fishing nets worth Rs.2.59 lakhs and 5 floats worth Rs.0.09 lakhs during 1970-74. But the Karnataka Bank, Ltd. was closely on heels of the Syndicate Bank with equipment financing worth Rs.2.60 lakhs. The Karnataka Bank, Ltd. financed nets worth Rs.2 lakhs in 1971 and one purse seine net in 1974 worth Rs.0.60 lakhs. The State Bank of Mysore did not finance exclusively any equipment or spare parts, but an amount of Rs.2,300 each was included in the loans granted to 13 boats under its 1973 scheme.

C. Financing of Preservation and Processing Units

Processing of marine fishes into sea-foods is a costly process. It is costly not purely in terms of real "processing" involved. But it is costly in the sense of cost of raw material, cost of packaging and the cost of preservation are very high and involve costly materials and machines. Hence, huge sums of capital is involved in the processing of sea-foods.

Like in the case of mechanised boats the government has been providing subsidies to private parties for the installation of preservation facilities. Between 1970-71 and 1974-75 alone a total subsidy of about Rs.8.73 lakhs were disbursed in 46 cases of installation of preservation facilities in the district. Table 31 provides the year-wise details of the subsidy disbursed.

Table 31: Details of Government Subsidy to Preservation Plants between 1970-71 and 1974-75.

Year	Number of cases covered	Total subsidy granted (in lakh rupees)
1970-71	7	1.19
1971-72	9	1.80
1972-73	15	3.51
1973-74	5	0.80
1974-75	10	1.43
Total	46	8.73

Source: Deputy Director of Fisheries, Mangalore.

The subsidy is normally restricted to the 20 per cent of the cost of such machinery subject to an overall limit of Rs.20,000 in each case.

The banking industry in the district has been playing a tremendous role in this sphere of fishery industry. The total amount financed by four responding banks during the period of 1969-75 amounted to Rs.222.36 lakhs. The bank-wise details are provided in the Table 32.

Again the Syndicate Bank has financed substantially the processing trade with as much as Rs.138.46 lakhs out of a total of Rs.222.36 lakhs. This bank had financed canning units during 1970-74 with Rs.136.12 lakhs overdraft facilities and Rs.2.34 lakhs in terms of loans. On an average, about three units per year got financing facilities from this bank.

Table 32: Financing of Preservation and Processing Units by four Banks during 1969-70.

Sl. No.	Name of the Bank	Period covered	Amount (in lakh rupees)
1.	Syndicate Bank	1970-74	138.46
2.	Canara Bank	1965-75	55.15
3.	State Bank of India	1971-74	26.25
4.	Karnataka Bank Limited	1968-75	2.50
			222.36

Data Source: Respective Banks.

The Canara Bank financed processing units during 1969-75 with Rs.55.15 lakhs. It consisted of Rs.1.70 lakhs to sea-food suppliers; Rs.2.38 lakhs to fish freezing units; Rs.0.60 lakhs to other processors; Rs.6.50 lakhs to unit involved in fish marketing and development work including processing; Rs.0.70 lakhs to fish manure units; Rs.31.10 lakhs to fish meal and fish oil units and Rs.12.17 lakhs to ice plants and cold storage units.

The State Bank of India financed fish canning and fish freezing units with Rs.26.25 lakhs during 1971-74 period. On an average two units per year got such a facility. State Bank of Mysore, State Bank of India's subsidiary did not finance any processing units.

The Karnataka Bank, Ltd. financed a single unit in

1969 with Rs.2 lakhs and another unit in 1972 with Rs.0.50 lakhs. However, one exporting unit, which was also involved in processing was being financed by the bank since 1968 with an annual working capital facility of Rs. 1 lakh. This has been added up in the export trade financing.

D. Financing of Export Trade

It would not be an exaggeration to say that export trade would be next to impossibility unless the financial institutions like banks step into financing it. This is because of the waiting time in the conversion of goods into cash, due to long time in transportation, terms of trade, etc. and also because of huge capital involved in the process of export trade. Sea foods have significantly good unit price and substantially good international demand. As shall be seen later the marine fishery industry of the district like its counterpart elsewhere in the country, is highly export oriented. The bank financing has been quite substantial in this sphere of the fishery industry as well. A total of Rs.1,926.33 lakhs was made available by only five banks in the district for the sea foods exports trade during 1969-1975 period. The bank-wise details are provided in Table 33.

The Syndicate Bank financed export trade during 1970-1974 with Rs.1,524.44 lakhs, of which Rs.761.78 lakhs was in the shape of pre-shipment finance and the remaining Rs.726.66 lakhs for post-shipment finance. During the period, on an average 9 units per year were provided with pre-shipment finance and on an average another 9 units with post shipment finance. The pre-shipment finance included Rs.691.73 lakhs in packing credits, Rs.1.05 lakhs in fixed capital, Rs.69.00 lakhs in other form of pre-shipment finance. Yearwise, in the year 1974 maximum finance was provided during 1970-1974 period, with a total export finance of Rs.541.15 lakhs. Of this Rs.259.44 lakhs were towards packing credits; Rs.1.05 lakhs were towards fixed capital, Rs.57.82 lakhs towards other pre-shipment finance and a sum of Rs.222.84 lakhs towards post shipment finance.

Table 33: Financing of Sea Food Exports by Five Banks during 1969-1975.

(rupees in lakhs)

Sl.No.	Name of the Bank	Pre-shipment	Post-shipment	Total
1.	Syndicate Bank	761.78	762.66	1,524.44
2.	Vijaya Bank, Ltd.	115.31	123.49	238.80
3.	Canara Bank			114.79
4.	State Bank of Mysore	25.80	14.50	40.30
5.	Karnataka Bank, Ltd.			8.00*
			Total	1,926.33

* The unit in question was also engaged in processing.

Data Source: Respective Banks.

The Vijaya Bank Limited, during 1973-1975 (up to 30-6-1975), provided pre-shipment finance (for procurement of raw materials, processing and packing of goods) of Rs.115.31

lakhs and post shipment finance of Rs.123.49 lakhs. The total export finance by this bank during the period amounted to Rs. 238.80 lakhs.

In the case of Canara Bank and Karnataka Bank Limited no separate information were available as to pre-shipment and post shipment. Total export finance by Canara Bank during 1969-1975 period amounted to Rs.114.79 lakhs and for Karnataka Bank it was Rs.8.00 lakhs.

The State Bank of Mysore provided pre-shipment export facilities to 7 units amounting to Rs.25.30 lakhs, during past five years. During the same period, 5 units were provided with a post shipment finance of Rs.14.50 lakhs. Total export finance by this bank during past five years amounted to Rs. 40.30 lakhs.

A Rough Estimate of Financing of Fishery Industry:

Based on the information made available, the total financing of fishery industry over a period of 1969-1975 could be roughly estimated at about Rs.25 crores. Table 34 provides the break-up of this figure by financing institutions and by nature of financing.

The total amount of financing of fishery industry in the district, estimated at Rs.25 crores, does not include financing by financial institutions other than mentioned in Table 34, nor does it include the subsidy on boats provided by the government and other methods of governmental financing.

It is purely a rough estimate based on the information made available by the respective financial institutions. Syndicate Bank, the lead bank of the district, stands out distinctly with a total financing of Rs.1,773.42 lakhs out of grand total of Rs.2,491.46 lakhs during 1970-74 period. Second place is occupied by the Vijaya Bank Limited with a total financing of Rs.267.00 lakhs during 1969-1975. Canara Bank secures third place with Rs.188.58 lakhs. Fourth place goes to State Bank of Mysore with Rs.108.11 lakhs. The fifth, sixth and seventh places are occupied by Fish Marketing Federation with Rs.93.00 lakhs; Karnataka Bank Limited with Rs.35.10 lakhs and the State Bank of India with Rs.26.25 lakhs respectively.

Table 34: An Estimate of total financing of Fishery Industry during 1969-1975.

(rupees in lakhs)

Sl. No.	Name of the Institution	Mechanised boats	Equipments and spare parts	Preservation & processing units	Export Trade	Total
1.	Fish Marketing Federation.	93.00	*	-	-	93.00
2.	Syndicate Bank	107.84	2.68	138.46	1,524.44	1,773.42
3.	State Bank of Mysore	67.81	**	-	40.30	108.11
4.	Vijaya Bank Ltd.	28.20	-	-	238.80	267.00
5.	Canara Bank	18.64	-	55.15	114.79	188.58
6.	Karnataka Bank Limited	22.00	2.60	2.50	8.00	35.10
7.	State Bank of India	-	-	26.25	-	26.25
	Total	337.49	5.28	222.36	1,926.33	2,491.46

* The credit facilities provided by the Federation to its members to purchase equipment, spare parts and diesel oil is excluded here.

** An amount of Rs.0.30 lakh towards equipments is included in the value of boats.

By nature of financing the export trade occupies the first place with a total of Rs.1,926.33 lakhs out of the grand total of Rs.2,491.46 lakhs. Second place goes to mechanised boats with Rs.337.49 lakhs, third place to canning units with Rs.222.36 lakhs and the financing of equipment and spare parts occupied only the last place with a small amount of Rs.5.28 lakhs.

Keeping in view the fact that not all the financial institutions covered in the above estimate have financed this industry for all the years during 1969-1975, it would not be wrong to state that on an average this annual financing of this industry is around Rs.5 crores. With small number of population covered by the fishery industry in the area an annual average financing of Rs.5 crores cannot be termed as a small figure.

Financing by Government:-

Apart from the indirect financing in the form of subsidies the government has also, from time to time, financed this industry directly. It can be seen from the Table 35 that the year 1974-75 started with an outstanding balance of loans, from co-operatives and fishermen, to the tune of Rs. 23.55 lakhs. Of this amount, only Rs.3.82 lakhs could be collected during the year. The year ended with outstanding loans of Rs.21.59 lakhs, as during the year two fresh loans worth Rs.1.86 lakhs were made available by the government.

Table 35: Government loans outstanding, collection and balance for the year 1974-75.

(rupees in lakhs)

Sl. No.	Head of Account	Total loan due at the beginning of the year	Collections during the year	Balance outstanding at the end of the year.
1.	498 Co-operatives - 8, Fishermen Co-operatives - 1, Share capital to Fishermen Co-operatives.	4.41	0.01	4.40
2.	698 loans to Co-operative Societies-7.	0.06	0.01	0.05
3.	698 loans to Co-operative Societies-7, Boat building, mechanised fishing, etc.	8.09	-	8.09
4.	- do - distress Relief loan to Fishermen	10.19	3.58	6.61
5.	- do - Supply of Fishery Requisites loans.	0.80	0.22	0.58
6.	III NCDC Sponsored Scheme loan assistance to Fishery Co-operative Societies.	-	-	1.70
7.	712 loans for Fishermen 2 - other loans - construction and improvements of Marketing facilities.	-	-	0.16
	Total	23.55	3.82	21.59

Source: Annual Report, 1974-75 - Deputy Director of Fisheries, Mangalore.

The Annual Report of the department for the year 1974-75 states that at the end of the year an amount of Rs.5.22 lakhs was over due for collection.

Besides, the government has provided the Federation with loans totalling to Rs.21.72 lakhs of which Rs.20.00 lakhs are interest fre loans and Rs.0.49 lakh in the form of share capital and rest towards purchase of certain equipments. The government has also financed the Karnataka Fisheries Development Corporation, a wholly government undertaking, with Rs. 21.00 lakhs in share capital and Rs.81.00 lakhs in the form of assets. All these governmental financing add up to Rs. 139.31 lakhs for the fishery industry.

An Overall View on Financing:

With the foregoing analysis of the financing of the fishery industry in the district one concrete factor emerges clearly. It is quite evident that this industry has been very well financed by the government with its various subsidy scheme and direct financing on the one hand and by the various commercial banks on the other. In the case of Peru, a country which holds top place in the fishery industry of the world, it is pointed out that the "equity capital involved was dwarfed by debt financing offered at short and medium terms of banks". The situation is very much similar to Peru in the case of south kanara district. International demand for some of the marine species of the coast, particularly the prawns, and the consequent export drive on the part of the government have been responsible for this phenomenon.

The Consultative Committee

The existence of the Consultative Committee for Banking Development in South Kanara district constitutes an important feature. This Committee has representatives from various banks of the district, various industries of the region as also the government have their representatives in this Committee. Several industry-wise sub-Committees have been formed for better functioning. The purpose of the Consultative Committee is to cater to the financial needs of the industries in keeping with the governmental policies. There is one Sub-Committee to deal exclusively with the marine fishery industry of the district. This Committee meets periodically to evaluate the financial needs and the past performance.

Chapter IX

CONSUMPTION PATTERN

The term is used in the sense of the end use of a product, in this case marine fishes. In the fishery terminology, "methods of disposals" is quite often used to denote the way the fishes are ultimately utilised. In the economic context the term consumption seems to be more suitable. The marine fish is consumed both in its fresh form and also after processing. Therefore, the overall pattern of marine fish consumption can be broadly divided into two categories, viz., the Fresh Fish Consumption and the Processed fish. This categorisation is based on the general observation of the fishery industry.

Fresh Fish Consumption

Owing to the very nature of fish, it is consumed in fresh form, that is, soon after catches without much 'processing'. Fresh fish is generally a delicacy and has got permeated into the food habits of this coast, like elsewhere. Table 36 provides the data on the partern of consumption of fresh fish between 1965-66 and 1974-75. The data are provided market-wise, viz., in the local markets of the district, in the markets of the upghat areas and in the areas of neighbouring districts where the fresh fish from this district are taken by launches.

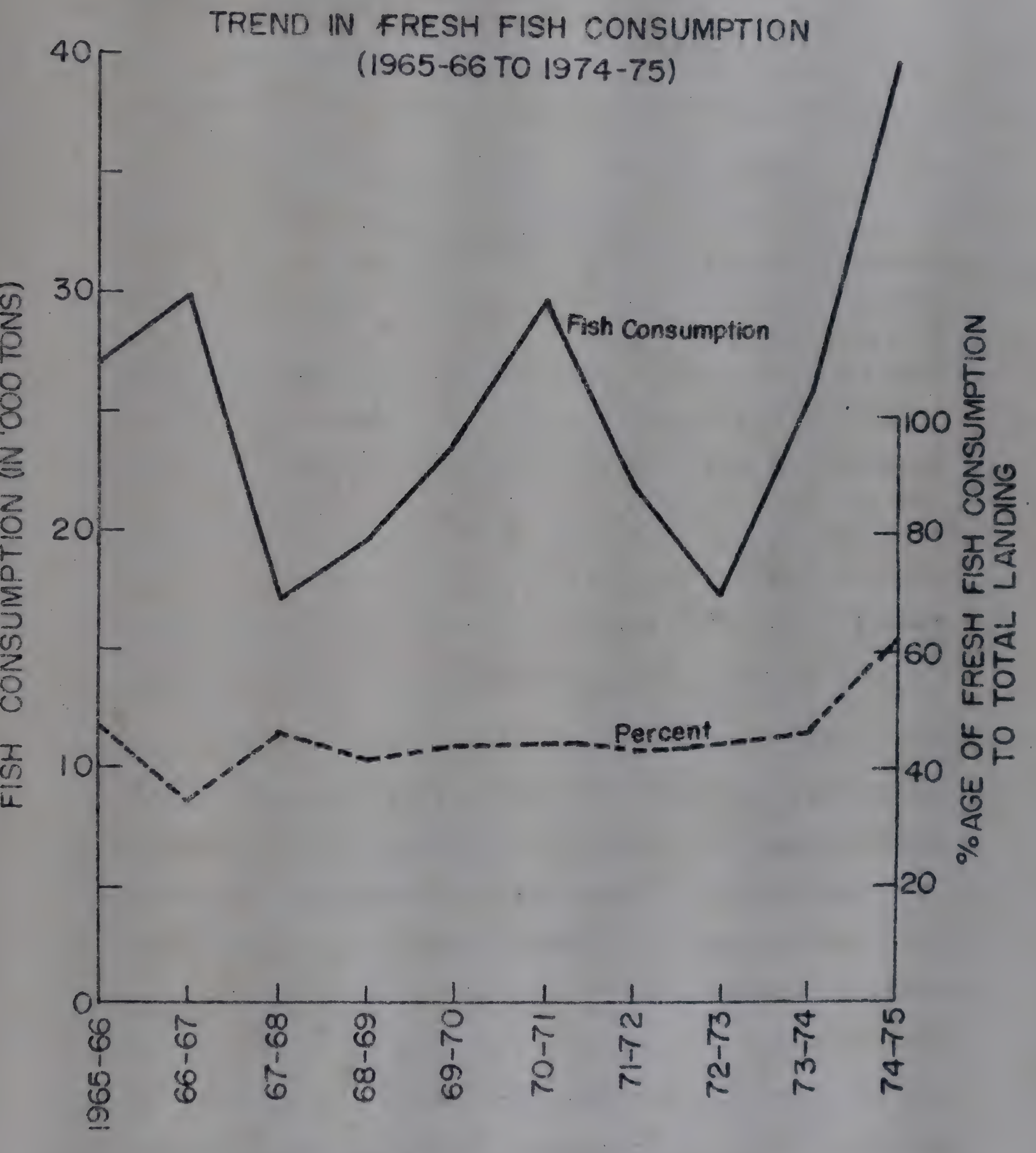
Table 36: Market-wise trend in Fresh Fish Consumption (all varieties), and its Percentage share in Total landings.

(quantity in tonnes)

Year	Local Markets	Upghat Markets	Other Markets	Total fresh fish consumption	Percentage of Fresh fish consumption to total landings
1965-66	17,791	8,329	711	26,831	47.3
1966-67	19,083	9,777	595	29,455	35.2
1967-68	12,300	4,276	198	16,774	46.1
1968-69	14,718	4,714	5	19,437	43.2
1969-70	16,247	7,818	70	24,135	44,3
1970-71	16,867	12,241	788	29,896	45.0
1971-72	14,636	8,005	85	22,726	44.8
1972-73	12,577	4,857	2	17,436	45.2
1973-74	17,757	8,293	5	26,055	47.0
1974-75	15,158	20,777	-	35,935	61.8

Data Source: Assistant Director of Fisheries, Mangalore.

The total consumption of the fresh fish has increased from 26,831 tonnes in 1965-66 to 35,935 tonnes in 1974-75. But the trend has been highly erratic and steep variations are observed in the total quantity consumed. However, when seen as a percentage of total landings, except for the two years of 1966-67 and 1974-75, in the remaining eight years of 1965-66 to 1974-75 period, fresh fish consumption has been, more or less, constant at 45 per cent. In the year 1966-67, the percentage was the lowest for the period at 35 per cent and in 1974-75, it was highest for the period at about 62 per cent. Therefore, it seems that the variations in the



TREND IN FRESH FISH CONSUMPTION
(1965-66 TO 1974-75)
FISH CONSUMPTION (IN '000 TONS)
0
10
20
30
40
%AGE OF FRESH FISH CONSUMPTION TO TOTAL LANDING
20
40
60
80
100
Fish Consumption
Percent
1965-66
66-67
67-68
68-69
69-70
70-71
71-72
72-73
73-74
74-75

FIG. 6

quantity of fresh fish consumption has been directly related to the variations in the total landings.

Market-wise, the fresh fish consumption in the local markets has been varying around 15,000 tonnes during 1965-66 to 1974-75 period. This is a peculiar feature. During the said period the district, and more particularly the costal regions, have undergone a conspicuous change in the economic front. This has increased the per capita income and the purchasing power of the people. Also, the rate of population growth in the region has been around 2.5 per cent per annum. These two factors should have substantially enhanced the quantity of fresh fish consumption. Interpretation of this phenomenon would mean that the per capita consumption of fresh fish in the region, which was estimated at around two kgs. for 1970-71 has been decreasing.

In the case of upghat markets the average quantity of fresh fish consumption has been around 6,000 tonnes during 1965-66 to 1974-75 period. However, in the year 1974-75, a phenomenal increase to 20,777 tonnes is observed. And in that year these markets accounted for about two-thirds of the total fresh fish consumption and surpassed local markets in such consumption.

In the case of other markets in the neighbouring coastal districts, where fresh fish are taken by launches, the consumption pattern has been highly erratic. When compared with the local markets and upghat markets 'other markets' had insignificant, and sometime very little share in the quantum of fresh fish consumption.

Species-wise Analysis of Fresh Fish Consumption:

The trend in fresh fish consumption is better portrayed when analysed species-wise. In the case of mackerel, one of the major species of the district's coast, a study of years 1965-66 to 1974-75 reveals that on an average 50 per cent of the total landings are consumed in fresh condition. The data reveals that except for the year 1970-71, consumption of fresh mackerel has been greater in the local markets as compared to the upghat markets. The transfer of fresh mackerel by launches to neighbouring districts on the coast was either very insignificant or nil.

Similar study of oil sardines indicates that, on an average, 45 per cent of this species was consumed fresh. However, variations in this percentage was very steep between the years, 32 per cent in 1966-67 and 1967-68 to 64 per cent in 1974-75. The consumption pattern between the local markets and the upghat markets, normally, was more or less, equal. Of late, the upghat markets surpassed the local markets in total consumption of fresh oil sardines in 1973-74 and 1974-75, their share being twice of that of local markets. Transfer by launches was, rather, not very significant in quantity.

In the case of prawns the share of fresh consumption has been staggering from year to year, lowest being 4 per cent of the total landings in 1966-67, and the highest in the years 1967-68 and 1968-69 was 43 per cent. Excepting for the years of 1967-68, 1968-69 and 1974-75 the fresh prawns consumed had been always below 20 per cent of the total landings. The fresh consumption in the local market has shown a steep downward trend between 1965-66 and 1974-75, whereas that of upghat market has shown a steep upward raise. Until 1968-69, the local markets of the district accounted for the lion's share of the fresh prawn consumption, for example, 2,259 tonnes out of the total fresh fish consumption of 2,985 tonnes in 1968-69. However, since 1968-69, the upghat markets have overtaken the local markets in the consumption of fresh prawns, for example, in 1974-75, out of 1,465 tonnes of fresh prawns consumed the share of upghat markets was as much as 1,432 tonnes, whereas local markets accounted for only 33 tonnes. It is worth noting here that prawn is the main item of marine products exports of the district. This particular factor influences the price structure of prawn and consequently the consumption in the home markets in the fresh form.

Table 37 indicates the pattern of fresh consumption of mackerel, oil sardines and prawns since 1965-66.

Table 37: Percentage share of fresh consumption to Total landings of Mackerels, Oil Sardines and Prawns between 1965-66 and 1974-75.

Year	Mackerels	Oil Sardines	Prawns
1965-66	45 (33)	56 (21)	8 (8)
1966-67	43 (28)	32 (16)	4 (4)
1967-68	53 (38)	32 (21)	43(40)
1968-69	65 (38)	35 (15)	43(34)
1969-70	50 (30)	41 (20)	11 (6)
1970-71	51 (24)	41 (26)	21(10)
1971-72	51 (30)	41 (23)	18 (9)
1972-73	68 (48)	55 (28)	16 (4)
1973-74	51 (22)	52 (25)	11 (1)
1974-75	40 (27)	64 (18)	29 (1)

Note: Figures in brackets indicate the percentage share of local markets in the total fresh fish consumption of respective species.

Data Source: Assistant Director of Fisheries, Mangalore.

Apart from mackerel, oil sardines and prawns, practically the entire landings of other varieties are consumed in fresh form. Such species are elasmobranches (like sharks, rays, skates); clupieds (other than oil sardines, like white sardines, other sardines, achovies); scombroids (other than mackerel, like seer fish, tunnies and chorinemus); perches (like locktorius, silver bellies, gerres, lalis calcalifer, letherinus and sciaenids); and other species such as ribbon fish, cat fish, polynemids, pomfrets, mullets, soles, sabre fish, lady fish, eels and the miscellaneous category. One special feature is that the local markets have a lion's share in their consumption, whereas the upghat markets have very small share and there is absolutely no transportation to adjoining coastal districts.

As noted in Chapter II, the total landings of species, other than mackerel, oil sardines and the prawns have shown an appreciable increase over the years. This increase, as has been already noted, has not only been mitigating the fluctuating landings of these three commercially major varieties, as if it were, but has been responsible to some extent for the overall increase in the total landings of marine fishes in the district's coast. As these species are consumed mainly in the local markets, it can easily be surmised that the stagnant trend observed in the fresh consumption of the mackerel, oil sardines and the prawns in the local markets has been the natural sequel to it. It means that the consumers in the local markets have been switching over to other varieties from mackerel, oil sardines and prawns along with increasing demand for these three varieties from the upghat markets.

Processed Fish

Apart from fresh consumption, a part of the fish landings is processed. Certain processing is carried out just to preserve its consumption utility for a longer period (like freezing), certain other processing is undertaken to make the fish better tasting delicacy (like curing, sun-drying and canning). Processing also enables to cater to the needs of consumers of a wider geographical area, especially those living away from the sea coast. This enlarges the market and a better price for otherwise highly perishable fish, is ensured for the fishermen.

Oil extraction from the fish is another process of commercial importance. Conversion of un-consumed or non-consumable fish or the fish residues from oil extraction and other processes into fish meal and fish manure are the further two important commercial processes in the marine fish industry.

Table 38 shows the total quantity of fish processed during the ten years period of 1965-66 to 1974-75. It also shows the share of such total processed quantity to the total fish landings of the respective years.

Quantitatively, Table 38 clearly indicates the unsteady nature of processing carried out in the district. Highest quantity processed was in 1966-67 at 54,440 tonnes and the lowest was in the immediately following year of 1967-68 at 19,572 tonnes. In terms of percentage to total landings, except for the year 1974-75, there has been some steady trend, wherein it is around 54 per cent of the total landings. The average quantity processed during ten years 1965-66 to 1974-75 works out at 29,535 tonnes, which is 54 per cent of average landings. However, it is observed that the average quantity processed in the first five years of 1965-66 to 1969-70 was

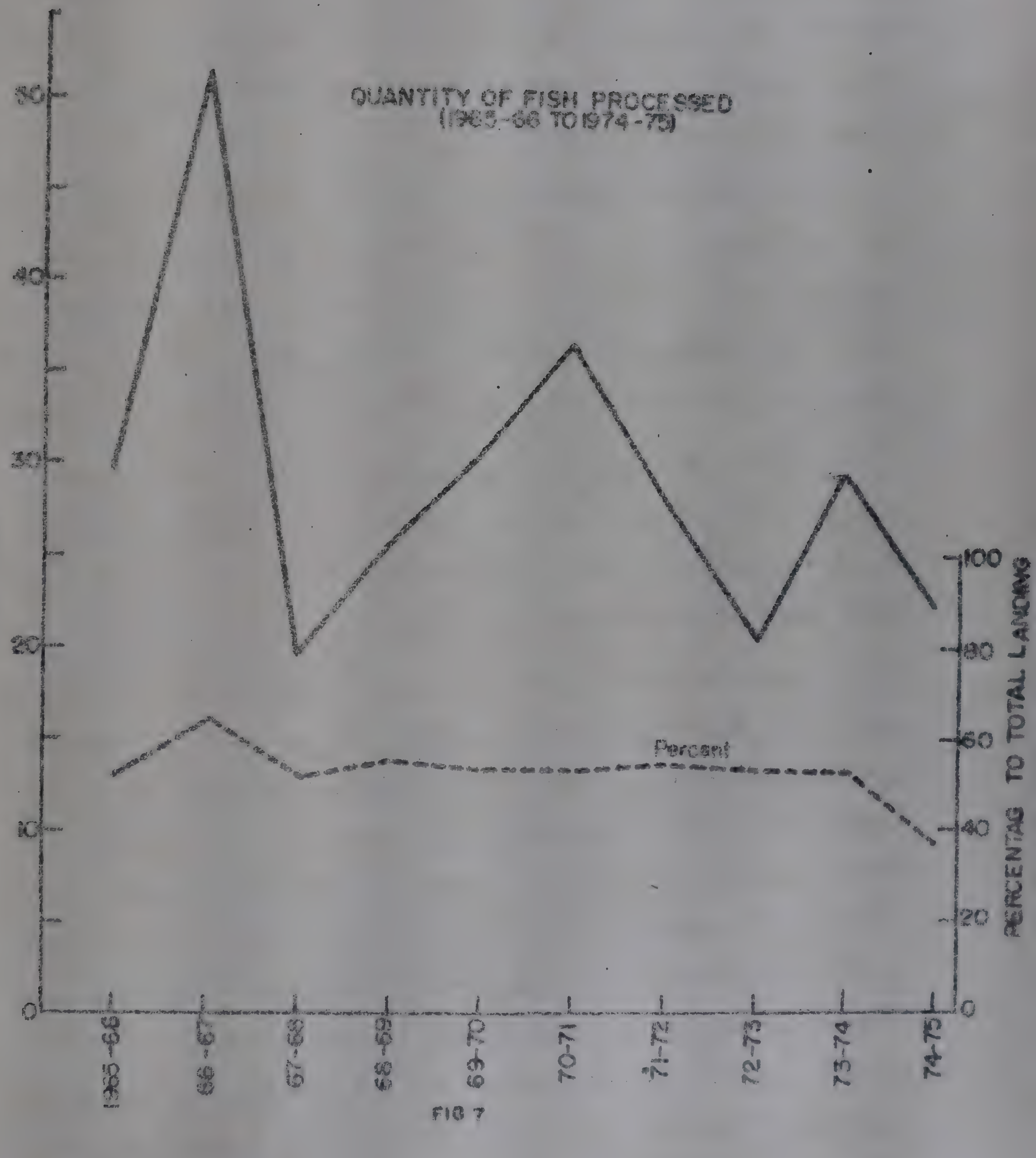

QUANTITY OF FISH PROCESSED
(1965-66 TO 1974-75)
('000 TONS)
0
10
20
30
40
50
PERCENTAG TO TOTAL LANDING
0
20
40
60
80
100
Percent
1965-66
66-67
67-68
68-69
69-70
70-71
71-72
72-73
73-74
74-75

FIG 7

31,946 tonnes i.e., 56.71 per cent of the average landings, which was higher than the similar figure for the next five years of 1970-71 to 1974-75 at 27,343 tonnes and 51.25 per cent. This clearly shows that the fish processing in the district, both in terms of quantity and as a percentage of total landings, has been on the decline during the second five years as compared to the first five years, during the ten years of 1965-66 to 1974-75.

Table 38: Quantity of Fish Processed during 1965-66 to 1974-75 and its percentage share in total landings.

Year	Quantity Processed (in tonnes)	Percentage share in total landings
1965-66	29,745	52.7
1966-67	54,440	64.8
1967-68	19,572	53.9
1968-69	25,583	56.8
1969-70	30,391	55.7
1970-71	36,520	55.0
1971-72	27,959	55.2
1972-73	20,539	54.8
1973-74	29,415	53.0
1974-75	22,285	38.2

Data Source: Assistant Director of Fisheries, Mangalore.

Process-wise Analysis:

Table 39 provides the comparative picture of seven processes and their percentage share in the total landings during the ten years of 1965-66 to 1974-75. It can be seen from the table that the processes of curing and manuring occupy the lion's share among the seven processes. However, the percentage share of curing has been steadily on decrease during the past ten years and the share has come down from 34.1 per cent of total landings during 1965-66 to as little as 13.8 per cent in 1974-75. But the highest share in ten years was in 1967-68 at 35.4 per cent of the landings and the lowest was during 1974-75 at 13.8 per cent. As far as the share of manuring is concerned, lowest was in 1972-73 at 1.6 per cent of the landing and highest was in 1966-67 with 30.4 per cent. Apart from these two exceptional years and the year of 1973-74 (with 2.04 per cent) during the remaining seven years the process of manuring has steadily averaged around 10 per cent of the total landings.

Frozen fish occupies the next important place among the processed fish. The lowest share of this process has been during 1967-68, with only 2.36 per cent of the total landings, whereas highest was in 1973-74 with 17.94 per cent. During ten years of 1965-66 to 1974-75 the share of frozen fish averaged at about 7 per cent of the total landings. However, during the first five years of 1965-66 to 1969-70 average share is only about 4 per cent of the landings, whereas during the second five years of 1970-71 to 1974-75, the average share has substantially increased to about 11 per cent.

Table 39: Percentage shares of Seven Processes in the Total Landings and their Trend during 1965-66 to 1974-75.

Sl. No.	Process	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75
1.	Curing	34.1	27.7	35.4	26.5	29.7	27.1	25.5	31.3	25.5	13.8
2.	Sun drying	-	-	-	2.6	1.5	4.6	4.7	3.9	1.8	3.1
3.	Freezing	4.9	3.4	2.4	5.1	5.1	5.0	7.9	13.3	17.9	6.2
4.	Canning	1.9	1.5	1.3	2.5	3.8	3.2	2.2	0.9	2.1	0.1
5.	Oil Extraction	1.1	1.5	0.4	6.4	5.3	5.2	5.3	1.7	3.6	2.6
6.	Manuring	10.7	30.4	14.4	13.7	10.3	9.8	7.5	1.6	2.0	12.4
7.	Fish Meal	-	-	-	-	-	-	2.0	2.1	0.0	0.0
	Processed Fish as percentage of total landings.	52.7	64.5	53.9	56.8	55.7	54.9	55.1	54.8	53.0	38.2

Date Source: Assistant Director of Fisheries, Mangalore.

Next in importance, from the point of view of quantity processed, is oil extraction. It should be mentioned here that the share of this process in the total landings has been highly erratic, varying from lowest share of 0.42 per cent of the total landings in 1967-68 to 6.38 per cent in 1968-69. Only during the four year period of 1967-68 to 1971-72 some sort of steady share around 5 per cent of the landings is observed. There is some improvement in the average share of this process in the total landings during the second five years of 1970-71 to 1974-75 with around 4 per cent as compared with about 3 per cent share during first five years of 1965-66 to 1969-70.

A very negligible quantity of fish was sun dried during 1965-66 to 1967-68. During the remaining two years of 1968-69 and 1969-70, on an average, 2 per cent of the total landings were sun dried. During the second five years of 1970-71 to 1974-75, except for the year of 1973-74 (1.80 per cent) the sun dried process was over 3 per cent of the total landings. The average for this period being about 4 per cent of the landings.

The process of canning was carried throughout the ten year period of 1965-66 to 1974-75. The average share of canned fish in total landings was about 2 per cent during the first five years of 1965-66 to 1969-70. During the second five years of 1970-71 to 1974-75, it was less than 2 per cent

This indicates a declining share of canning in the total landings. The year 1974-75 had a lowest share with a meagre 0.05 per cent of total landings.

The process of preparing fish meal has been of recent origin and was started only in 1971-72. During the first two years of 1971-1973 fish meal accounted for about 2 per cent of the landings. But during next two years of 1973-1975, the percentage share fell steeply to a meagre 0.04 per cent.

It can be seen from the Table 39 that consumption oriented processes of curing, sun drying, freezing and canning accounted for a major share in the total processed fish. Among other processes, the manuring accounted for a larger share followed by oil extraction and fish meal.

On an average, 85 per cent of the total marine landings are used for consumption purposes (both fresh and processed), whereas only remaining 15 per cent is used for non-consumption purposes such as oil extraction, manuring and fish meal.

Table 39 only provides an overall view of various processes. For a realistic picture of each process species-wise analysis of each process is essential.

Species-wise Analysis of Processing:

1. Curing: Based on the ten years' average, 1965-66 to 1974-75, mackerel with an average of 3,578 tonnes, emerges

as a leading specie in the cured fishes (Table 40). During these ten years period it is observed that, apart from steep variations in quality from year to year, for example, 1966-67 and 1967-68, 1968-69 and 1969-70, there has been a substantial increase in the average quantity of mackerel cured, as between the five years of 1965-66 to 1969-70 (3,015 tonnes) and the next five years of 1970-71 to 1974-75 (4,135 tonnes). However, there has been a considerable reduction in the average share of cured mackerel in its total landings, from 41.13 per cent during 1965-66 to 1969-70 to 32.21 per cent during 1970-71 to 1974-75.

Oil sardines constitute the second important fish to be cured and in the ten years of 1965-66 to 1974-75 averaged at 2,412 tonnes. A steep reduction is observed in the average quantity of oil sardines cured from 3,511 tonnes during 1965-66 to 1969-70 to 1,314 tonnes during 1970-71 to 1974-75. Reduction is also observed during the same periods in the share of cured oil sardines to its total landings from 13.61 per cent to 8.07 per cent.

Cat fish occupies the third place in the cured fishes with an average of 1,725 tonnes during the ten years of 1965-66 to 1974-75. There has been a reduction in the average quantity of cat fish cured from 2,424 tonnes during 1965-66 to 1969-70 to 1,025 tonnes during 1970-71 to 1974-75. It is observed that as much as 71.49 per cent of the catches

Table 40: Species-wise Details of Fish Curing during 1965-66 to 1974-75.

(Quantity in Tonnes)

Sl. No.	Species	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73	1973-74	1974-75	Ten Years' Average
1.	Mickerel	2,943 (47.0)	5,411 (52.4)	733 (45.1)	522 (27.4)	5,454 (33.7)	9,516 (43.3)	5,649 (37.4)	614 (25.9)	4,428 (38.5)	425 (16.0)	3,570
2.	Oil sardines	2,237 (10.9)	7,408 (14.4)	4,769 (25.4)	1,789 (10.0)	1,352 (7.5)	1,292 (5.8)	1,273 (7.5)	1,732 (17.4)	527 (4.6)	1,745 (5.1)	2,412
3.	Other Clupieds	708 (38.8)	231 (25.2)	273 (29.1)	295 (30.3)	186 (22.2)	496 (32.9)	48 (24.7)	66 (34.4)	93 (27.4)	... ...	240
4.	Silver Bellies	76 (24.3)	561 (62.2)	142 (53.8)	174 (67.9)	908 (76.4)	166 (66.9)	357 (35.4)	1,332 (49.4)	564 (46.9)	1,479 (67.8)	576
5.	Sciaenids	292 (34.4)	585 (89.6)	20 (40.8)	181 (68.1)	39 (32.8)	47 (32.6)	207 (22.9)	194 (21.9)	307 (49.1)	163 (55.4)	204
6.	Cat Fish	321 (69.1)	1,624 (78.3)	2,882 (68.3)	3,513 (73.7)	3,779 (68.1)	1,483 (55.1)	620 (47.9)	1,361 (72.5)	1,071 (74.6)	592 (36.5)	1,725
7.	Soles	4,849 (86.4)	150 (20.3)	334 (51.8)	894 (88.8)	588 (91.3)	270 (72.8)	771 (50.7)	993 (67.5)	427 (42.3)	1,014 (84.7)	1,029
8.	Miscellaneous	7,537 (43.1)	7,173 (55.1)	3,175 (43.2)	3,926 (37.7)	3,428 (35.8)	3,542 (31.8)	2,769 (40.7)	4,350 (50.8)	5,902 (40.8)	1,656 (23.7)	4,346
9.	Other species	293 (9.5)	378 (9.7)	524 (17.2)	640 (9.7)	459 (35.0)	1,173 (17.0)	1,209 (17.5)	1,503 (42.4)	843 (41.1)	959 (26.9)	798
	Total quantity cured.	19,256	23,521	12,852	11,934	16,193	17,985	12,903	12,145	14,162	8,033	14,898
	Total cured fish as percentage of total landings.	34.1	27.7	35.4	26.5	29.7	27.1	25.5	31.3	25.5	13.8	27.7

Note: Figures in brackets indicate the percentage to total landings in respective species.
Data Source: Assistant Director of Fisheries, Mangalore.

of cat fish, on an average, was cured during 1965-66 to 1969-70. But this share came down to 57.32 per cent during the next five years of 1970-71 to 1974-75.

Soles occupied the fourth place with a decennial average of 1,031 tonnes. Even in this case a reduction is observed in the average quantity of soles cured from 1,363 tonnes during first five years to 700 tonnes during the second five years. The average share of cured soles to its total landings has shown a slight decrease from 67.72 per cent to 65.61 per cent during the same period.

Silver Bellies, with an average of 576 tonnes during 1965-66 to 1974-75 stand fifth in the cured fishes. In contrast to other fishes referred above, silver bellies have shown a substantial increase in the average quantity of fish cured from 372 tonnes during first five years to 780 tonnes during the second five years. But the share of cured silver bellies in its total landings during the same periods indicates a marginal reduction from 56.93 per cent to 53.24 per cent.

Other clupieds, (other than oil sardines) with an average of 235 tonnes and sciaenids with an average of 206 tonnes during 1965-66 to 1974-75 occupied sixth and seventh place respectively among the cured fishes.

However, it is the "Miscellaneous Species" as a group commonly known as "Mixture", averaged highest tonnage in the curing with 4,346 tonnes. Rest of the species, categorised in the Table 39 as "Other Species" averaged 797 tonnes.

It is to be pointed out here that the overall reduction in the share of cured fish in the total landings of all the species, from 34.10 per cent in 1965-66 to a small share of 13.80 per cent in 1974-75, substantiates the general reduction observed in the quantity of individual species cured.

It is worth noting here that earlier curing activities were carried on both by government (in 15 governing curing yards of which 5 located at Ullal, Udyawar, Malpe, Hangarkatta and Gangolli were major curing yards, and the remaining 10 located at Mangalore, Bockapatna, Baikampady, Kulai, Hosabettu, Moolki, Kaup, Polippu, Maravanthe and Tharapathy were minor yards) and private curing yards. Table 41 provides the share of fish cured by government and private yards during 1965-66 to 1974-75.

It can be seen from Table 41 that the government curing yards had only a minor share in the total quantity of fish cured and the private yards accounted for the major share. It can also be seen that since 1971-72, the government yards were practically defunct. The discontinuation of salt subsidy scheme is stated as the reason for the stoppage of curing work at the government yards. In the case of private yards, even though they cured lesser quantity of fish than earlier, except for the year 1974-75, the output was not very much far away from the normal average.

Table 41: Share of Government and Private Fish Curing Yards in total Fish Cured during 1965-66 to 1974-75.

(quantity in tonnes)

Year	Government curing yards	Private curing yards	Total
1965-66	2,817	16,438	19,255
1966-67	2,826	20,696	23,522
1967-68	1,052	11,799	12,851
1968-69	1,274	10,660	12,934
1969-70	306	15,886	16,192
1970-71	168	17,817	17,985
1971-72	-	12,903	12,903
1972-73	6	12,129	12,135
1973-74	-	14,162	14,162
1974-75	18	8,015	8,033

Data source: Assistant Director of Fisheries, Mangalore.

2. Sun Drying: As already noted the process of sun drying is on record only since 1968-69. Table 42 provides the quantity and the share of important species in the total sun dried fish during 1965-66 to 1974-75.

It can be seen from the Table 42 that the oil sardine occupy lion's share in the total quantity of sun dried fish. On an average, more than 60 per cent of the sun dried fish during 1968-69 to 1974-75 has been of this species. In certain years, like 1969-70 and 1974-75, practically the whole of sun dried fish has been oil sardines as they accounted for more than 81 and 97 per cent respectively.

Table 42: Quantity and the Percentage Share of Important Species in the Sun Dried Fish.

Years	Oil Sardines	Ribbon fish	Prawn	Mis-cella-neous species	Other Species	Total
1968-69*	754 (64.33)	-	407 (34.74)	3 (0.68)	8 (0.26)	1,172
1969-70	659 (81.77)	-	118 (14.64)	2 (0.23)	27 (3.36)	806
1970-71	1,401 (45.98)	72 (2.37)	12 (0.40)	1,522 (49.95)	40 (1.31)	3,047
1971-72	1,257 (53.19)	403 (17.05)	76 (3.22)	565 (23.91)	62 (2.63)	2,363
1972-73	754 (50.00)	505 (33.50)	33 (2.20)	38 (2.50)	178 (11.80)	1,508
1973-74	696 (69.60)	279 (27.90)	-	15 (1.50)	10 (1.00)	1,000
1974-75	1,763	50	-	-	-	1,813

* Figures for sun drying process are available only from 1968-69.

Note: Figures in Bracket indicate the percentage share of each species to the total quantity of sun dried fish in each year.

Source: Assistant Director of Fisheries, Mangalore.

In the case of prawns which accounted for as much as 34.74 per cent of the total sun dried fish in 1968-69, having come down to 2.20 per cent in 1972-73, the share was little in the years 1973-74 and 1974-75.

On the contrary, the ribbon fish which joined this process only in 1970-71 with 2.37 per cent share increased its share to as much as 33.50 in 1972-73. But in the years 1973-74 and 1974-75 share came down to 27.90 per cent and 2.76 per cent respectively.

Excepting for the years 1970-71 and 1971-72, the "miscellaneous group" had accounted for less than 3 per cent share. In the case of "other species", excluding the exceptionally high share of 11.80 per cent in 1973-74, the share has hardly been little over 3 per cent.

Thus, the sun dried process is more or less exclusively confined to the oil sardines and ribbon fish or oil sardines and prawns. In both the combinations the oil sardines have been the major partner.

3. Freezing: The processing of freezing has got confined to the export oriented prawns. Practically the entire frozen species constituted prawn during 1965-66 to 1974-75. Table 43 clearly depicts this domination of prawns.

It can be seen from the Table 43 that except for the years 1970-71 and 1972-73, in other years during 1965-66 to 1974-75 practically whole of frozen specie has been the prawns. In the year 1970-71 out of 47 tonnes of "other species" 46 tonnes were frozen mackerel and the remaining one tonne consisted of cat fish. In the year 1971-72, out of 1,223 tonnes of other species, accounting for 30.34 per cent of the frozen fish, as much as 1,217 tonnes were mackerel, oil sardines accounted for 5 tonnes and the seer fish for remaining one tonne. In the year 1972-73, the only one tonne of other species was seer fish. In 1973-74, out of 6 tonnes of other species, one tonne was seer fish and remaining 5 tonnes were pomfret.

Table 43: Quantity of Frozen Fish as between Prawns and Other Species.

(quantity in tonnes)

Year	Prawns		Others		Total
	Quantity	As a percentage share of Total	Quantity	As a percentage share of Total	
1965-66	2,747	100.00	-	-	2,747
1966-67	2,880	100.00	-	-	2,880
1967-68	857	100.00	-	-	857
1968-69	2,314	100.00	-	-	2,314
1969-70	2,780	100.00	-	-	2,780
1970-71	3,297	98.60	47	1.40	3,344
1971-72	2,808	69.66	1,223	30.34	4,031
1972-73	5,149	99.98	1	00.02	5,150
1973-74	9,942	99.95	6	00.05	9,948
1974-75	3,605	100.00	-	-	3,605

Data Source: Assistant Director of Fisheries, Mangalore.

Prawns not only account for the practically whole of the frozen species but it is also interesting to note that the major portion of the total prawn landings go into the frozen process. Table 44 shows the share of frozen prawns to their total landing during 1965-66 to 1974-75.

Table 44: Share of Frozen Prawns in the Total Prawn Landings during 1965-66 to 1974-75.

Year	Total landings (in tonnes)	Quantity frozen (in tonnes)	Frozen quantity as a percentage of total landings
1965-66	3,452	2,747	79.58
1966-67	3,154	2,880	91.28
1967-68	2,361	857	36.29
1968-69	6,891	2,314	33.57
1969-70	4,318	2,780	64.37
1970-71	4,948	3,297	66.64
1971-72	4,141	2,808	68.05
1972-73	6,326	5,149	81.41
1973-74	11,224	9,942	88.61
1974-75	5,071	3,605	71.09

Data Source: Assistant Director of Fisheries, Mangalore.

It can be seen from the Table 44 that excepting for the years 1967-68 and 1968-69 in all the other years of ten years period, 1965-66 to 1974-75, more than two-thirds of the total prawn landings have been processed as frozen prawns. It is found that in the year 1967-68 as much as 327 tonnes of prawns were canned and the remaining 167 tonnes were cured. In the year 1968-69 also as much as 834 tonnes were canned, 351 tonnes were cured and as much as 407 tonnes were sun dried. Hence, during these two years the shares of frozen prawns to their total landings were comparatively lesser to other years.

4. Canning: Canning is found to be confined to three species only, viz., mackerel, prawns and the oil sardines. On an average, mackerel occupies the first place in the total canned fish, the prawns follow immediately on the heals of mackerel for second place and the oil sardines occupy the third place. Other species hardly account for any significant share in the total canned fish. For example, only in the year 1966-67, two tonnes of tuna was canned and miscellaneous category of fishes were canned only once in the year 1969-70 to the extent of 2 tonnes. The only other species canned was "other sardines" to the extent of 12 tonnes in 1968-69; 8 tonnes in 1969-70; 7 tonnes in 1970-71 and 18 tonnes in 1971-72. No other species was ever canned during the study period of 10 years, 1965-66 to 1974-75. Table 45 shows the species-wise tonnage of canned fish during the study period.

It can be seen from the Table 45 that canning of prawns having reached highest mark in 1969-70 with 939 tonnes, has shown a declining trend since then and that in the years 1973-74 and 1974-75, there was no canning of this species.

The lowest quantity of canning was in the year 1974-75 with 30 tonnes, of which oil sardines accounted for 23 tonnes and the mackerel for the remaining 7 tonnes.

5. Oil Extraction: The process of oil extraction has been completely confined to one species, viz., the oil sardines. Only in one year, i.e., 1971-72, oil was extracted

from the point of view of percentage share of oil sardines landings used for this purpose. However, on an average about 10 per cent of oil sardine landings were used for oil extraction each year during 1965-66 to 1974-75.

Table 46: Quantity of Oil Sardines used in Oil Extraction and its Percentage Share in Total Oil Sardine Landings during 1965-66 to 1974-75.

(Quantity in Tonnes)

Year	Oil Sardines		Others	Total quantity used in oil extraction
	Quantity	As a percentage of total oil sardines landings		
1965-66	640	3.11	...	640
1966-67	1,299	2.52	...	1,299
1967-68	154	0.82	...	154
1968-69	2,871	16.08	...	2,871
1969-70	2,911	16.14	...	2,911
1970-71	3,460	15.52	...	3,460
1971-72	2,676	15.77	14*	2,690
1972-73	679	6.81	...	679
1973-74	2,000	17.64	...	2,000
1974-75	1,515	4.39	...	1,515

* Miscellaneous.

Data Source: Assistant Director of Fisheries, Mangalore.

6. Manuring: Like in oil extraction, oil sardines constitute the prime raw material for the manuring. Except for four years, 1969-70, 1970-71, 1971-72 and 1974-75 in

the remaining six years period during 1965-66 to 1974-75, the entire quantity of manure manufactured was based on the oil sardines. Even in these four exceptional years, excluding the year 1970-71 when the quantity of other species used in manuring was 114 tonnes (37 tonnes of other sardines, 70 tonnes of mackerel and 4 tonnes of miscellaneous species) out of the total of 6,543 tonnes of fish used for manuring, the share of other species was practically insignificant with a mere 5 tonnes of miscellaneous species in 1969-70, one tonne of prawn in 1971-72 and 15 tonnes of miscellaneous species in 1974-75. Table 47 provides the predominant picture of oil sardines in manuring process.

A cursory view of Table 47 indicates the declining trend in the quality of manuring. In the first five years on an average, 9,714 tonnes of oil sardines went into the process of manuring, whereas in the second five years this average was only 3,851 tonnes. Similarly, on an average 34.40 per cent of the total oil sardines landings were utilised for manuring, whereas this percentage came down to 17.72 for second five years of ten years period of 1965-66 to 1974-75.

7. Fish Meal: The processing of fish into fish meal is of very recent origin. It started only in the year 1971-72. In the first two years of fish meal production recognisable quantity of fish was used. It was 1,047 tonnes and 816 tonnes respectively. However, in the subsequent two years of 1973-74

and 1974-75, a steep fall in fish meal production is obse ved The production was a bare 20 to 25 tonnes respectively. Table 48 provides the species-wise details of fish used in fish meal production during 1971-72 to 1974-75.

Table 47: Quantity and the Percentage Share of Oil Sardines Landings Utilised in Manuring Process during 1965-66 to 1974-75:

(Quantity in Tonnes)

Year	Oil Sardines		Other species	Total
	Quantity	Percentage share in total oil sardines landings		
1965-66	6,009	29.18	..	6,009
1966-67	25,542	49.50	..	25,542
1967-68	5,222	27.77	..	5,222
1968-69	6,190	34.57	..	6,190
1969-70	5,607	31.10	5 *	5,612
1970-71	6,432	28.85	111 $	6,543
1971-72	3,815	22.48	1 @	3,816
1972-73	625	6,25	..	625
1973-74	1,132	9.98	..	1,132
1974-75	7,249	21.03	15 *	7,264

* Miscellaneous

$ 37 tonnes of other sardines, 70 tonnes of mackerel and 4 tonnes of miscellaneous species.

@ Prawn.

Data Source: Assistant Director of Fisheries, Mangalore.

It can be seen from Table 48 that only in the year 1971-72 as many as five specific species and the miscellaneous species of fish were used in the fish meal production.

However, the major share of raw material base for fish meal had been oil sardines with 853 tonnes out of a total of 1,047 tonnes. In the year 1972-73, only three species, viz., - oil sardines, goat fish and the lizard fish, were used. But once again oil sardines accounted for as much as 618 tonnes. In this year 196 tonnes goat fish and two tonnes of lizard fish accounted for the remaining 198 tonnes. In the remaining two years of 1973-74 and 1974-75, the small quantities of fish meal produced, viz., 20 and 25 tonnes respectively were entirely based on the oil sardines.

Table 48: Species-wise details of Fish Meal Production during 1971-72 to 1974-75.

(Quantity in Tonnes)

Sl. No.	Species	1971-72	1972-73	1973-74	1974-75
1.	Oil Sardines	853	618	20	25
2.	Goat Fish	48	196	..	..
3.	White Bait	52	...	..	..
4.	Lizard Fish	44	2	..	..
5.	Silver Bellies	11	...	..	..
6.	Miscellaneous	39	...	..	..
	Total quantity of fish used in fish meal production.	1,047	816	20	25

Data Source: Assistant Director of Fisheries, Mangalore.

Predominance of Three Species in Processing:

The foregoing species-wise analysis of the processing indicates a very interesting phenomenon. It is to be noted that the entire processing is centred around the three species viz., mackerel, oil sardines and the prawns. Table 49 crystalises this phenomenon by providing percentage shares of each of the recognisable important species in each of the same processes during 1965-66 to 1974-75.

Table 49 clearly points out that mackerel, oil sardines and prawns among themselves accounted for as much as 38.08 per cent of curing; 73.91 per cent of sundrying; 99.98 per cent of the freezing; 99.54 per cent of canning; 99.99 per cent of oil extraction; 99.99 per cent of manuring and 79.45 per cent of fish meal processes.

It is further revealed that the mackerel accounted for 22.04 per cent of the cured fish and 44.63 per cent of the canned fish during 1965-66 to 1974-75 and thereby emerged as the single leading species in these two processes. Its share in freezing was a mere 3.35 per cent and in manuring even lesser, 0.10 per cent.

As far as oil sardines are concerned, they clearly dominated the four processes with 66.01 per cent of sundrying; 99.99 per cent of oil extraction; 99.97 per cent of manuring and 79.45 per cent of the fish meal. Also oil sardines accounted for 16.04 per cent of the cured fishes during the said ten years period.

Table 49: Percentage Share of Important Species in Seven Processes during 1965-66 to 1974-75

Sl. No.	Species	Processes						
		Curing	Sundrying	Freezing	Canning	Oil Extraction	Manuring	Fish Meal
1.	Mackerel	22.04	..	3.35	44.63	..	0.10	..
2.	Oil Sardines	16.04	66.01	0.01	19.93	99.99	99.79	79.45
3.	Prawns	..	7.90	96.62	34.98	..	0.01	..
4.	Cat Fish	12.29	..	..	..	..	..	..
5.	Soles	7.08	..	..	..	..	..	..
6.	Ribbon Fish	..	11.94	..	..	..	..	..
7.	Miscellaneous	28.76	11.25	..	..	0.01	0.04	2.04
8.	Other Species	13.79	2.90	0.02	0.46	..	0.06	18.51
	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Assistant Director of Fisheries, Mangalore.

Prawns monopolised the freezing process by accounting for 96.62 per cent. Prawns share in canning was no less significant with 34.98 per cent even though, of late they were not canned. This species also accounted for 7.90 per cent of all the sun-dried species.

The remaining species played lesser role. Only in the processes curing, sundrying and fish meal the rest of the species had some recognisable share, whereas in the processes of freezing, canning, oil extraction and manuring hardly any significant contributions of the remaining species are found.

Chapter X

PRESERVATION AND PROCESSING UNITS

Preservation Units

Fish, being a highly perishable commodity, preservation facilities constitute the backbone of the fishery industry. This is more so, since the demand has switched from earlier cured fish to that of frozen fresh fish.

It was the commissioning of the Mangalore Ice - cum - Freezing plant and cold storage in the year 1955 which not only heralded the beginning of a new industry of export of frozen fish from the district but also the beginning of the use of ice and refrigerated storage for preservation of fish in the district. During the twenty years period of 1955-75 there has been a significant increase in every facet of preservation facilities.

The existing preservation facilities can broadly be grouped as those owned and operated by the private entrepreneurs and those owned and operated by other organisations. There are 40 private entrepreneurs who among themselves have the preservation facilities of a daily ice production capacity of 275 tonnes; cold storage capacity of 255 tonnes; freezing capacity of 46 tonnes per day and a frozen storage capacity of 1,110 tonnes. The details of these 40 private concerns are provided in Table 30.

Table 50: Preservation Facilities owned by Private Entrepreneurs.

(Capacity in Tonnes)

Sl. No.	Name and Location	Ice production per day	Cold Storage	Freezing per day	Frozen Storage
1	2	3	4	5	6
	ULLAL				
1.	Mangalore Sea Foods	..	..	2.5	75.0
2.	Mulbery Aquatic Products, Ltd.	10.0	..	2.0	100.0
3.	Arctic Ice Plant.	10.0	..	..	..
	Total	20.0	..	4.5	175.0
	MANGALORE				
4.	Appollo Sea Foods	..	..	1.0	..
5.	Bhavanthi Ice and Cold Storage	3.5	..	..	..
6.	City Ice Plant	10.0	..	..	..
7.	Continental Ice Cold Storage and Freezing Plant.	10.0	..	..	..
8.	Canara Ice and Cold Storage	15.0	..	..	..
9.	Durga Ice Plant.	10.0	..	..	..
10.	Encon Food Products	15.0	30.0	1.0	60.0
11.	Famous Fisheries	..	..	2.5	..
12.	Hajee K.Abdul Khader Bava and Sons	2.5	..	..	..
13.	- do -	10.0	40.0	..	100.0
14.	Kamadhenu Vegetable Oil and Fresh Fish Storage	..	40.0	..	..
15.	Kaivarthaka Industrial Works.	2.0	..	..	..
16.	Sairam Ice and Cold Storage	15.0	30.0	..	..
	Total	93.0	140.0	4.5	160.0

1	2	3	4	5	6
	KULUR				
17.	Mysore Ice Plant	10.0	..	..	..
18.	Mysore Cold Storage and Freezing Plant	..	..	..	100.0
19.	Santosh Aquatic Products	..	..	2.5	60.0
	Total	10.0	..	2.5	160.0
	BAIKAMPADI				
20.	Silverline Sea Foods	..	..	2.5	110.0
	Total	..	..	2.5	110.0
	KULAI				
21.	Master Ice Plant.	10.0	..	..	..
	Total	10.0	..	..	..
	SURATHKAL				
22.	Padiwal Ice Plant	15.0	..	..	..
23.	West Coast Ice Plant	10.0	..	..	..
	Total	25.0	..	..	..
	MUKKA				
24.	Madonna Frozen Foods.	..	..	..	25.0
25.	Mukka Oil and Food Industries	..	25.0	..	..
26.	Madonna Canning Company.	..	..	2.5	..
	Total	..	25.0	2.5	25.0
	UDYAWARA				
27.	Canara Sea Food Packers.	15.0	..	2.5	60.0
28.	Sowkar Ice Plant	10.0	..	..	..
29.	Sowkar Sea Foods	..	..	2.5	..
30.	Udyawar Ice Plant	10.0	..	..	..
	Total	35.0	..	5.0	60.0

1	2	3	4	5	6
	HOSABETTU				
31.	Seven Seas Fisheries	10.0	..	2.5	60.0
32.	Western Foods	..	..	1.5	..
	Total	10.0	..	4.0	60.0
	MALPE				
33.	Coronet Ice and Cold Storage and Freezing Plant.	20.0	50.0	7.0	200.0
34.	Malpe Ice Plant	10.0	..	..	..
35.	Srisons Sea Foods	..	..	2.5	..
36.	Vikram Fishing	..	..	5.0	100.00
	Total	30.0	50.0	14.5	300.0
	OTHER PLACES				
37.	Janatha Fisheries, Kota.	10.0	..	..	..
38.	Adarsh Ice Plant, Shastan.	10.0	..	..	..
39.	Karnataka Ice and Cold Storage, Gangolli	10.0	..	..	..
40.	Ocean Star Fisheries Trasi	12.0	40.0	6.0	60.0
	Total	42.0	40.0	6.0	60.0
	Grand Total	275.0	255.0	46.0	1,110.0

Source: Annual Report 1974-75; Deputy Director of Fisheries, Mangalore.

Of the 40 private preservation units only 26 produced ice and had a total capacity of 275 tonnes of ice per day. However, of these 26 units, as many as 17 were purely engaged in the production of ice and did not have other preservation facilities. These 17 units possessed total capacity of 164.5 tonnes of ice per day. It is also observed that among these ice plants there was only one plant with a capacity of 20 tonnes of ice per day, whereas there were five units each with 15 tonnes of ice per day, only one with 12 tonnes of ice per day. The remaining three units had capacity of 3.5, 2.5 and 2 tonnes of ice per day respectively. Thus, plants with capacity of 10 tonnes of ice per day were major contributors to the ice production in the district accounting for 160 tonnes out of a total capacity of 275 tonnes of ice production per day.

In the case of cold storage only 7 units shared amongst themselves the total capacity of 255 tonnes. One unit had 50 tonnes capacity, three had 40 tonnes capacity each, two had 30 tonnes capacity each, and only one had 25 tonnes capacity. It is found that only one plant possessed the cold storage facility exclusively with the ice production. Only two plants were engaged exclusively in cold storage. Only one plant had the other two facilities - of ice production and frozen storage - along with cold storage facility. But there were three plants where cold storage facility was accompanied by the availability of all the other three facilities as well, viz., ice production, freezing and frozen storage.

Sixteen units had a total freezing capacity of 46 tonnes per day. Capacity-wise there were: two units each with 1 tonne freezing capacity per day; one with 1.5 tonnes; one with 2 tonnes; nine with 2.5 tonnes each; one with 5 tonnes; one with 6 tonnes and one with 7 tonnes. There were six units with exclusively freezing facility, four had freezing facility coupled with frozen storage only, three units had freezing facility along with ice production and frozen storage and the remaining three had freezing facility with the other three preservation facilities as well.

The total frozen storage capacity of 1,110 tonnes was shared by the thirteen units. Out of these thirteen units only one had a capacity of 200 tonnes, one had 110 tonnes capacity, four units had each a capacity of 100 tonnes, one unit had a capacity of 75 tonnes, five units had each a capacity of 60 tonnes each and there was only one unit with a capacity of 25 tonnes. With the exception of only one unit (with a frozen storage capacity of 25 tonnes) all the other twelve units had one or the other preservation facility along with frozen storage.

As can be seen from the Table 50 a major portion of these facilities are concentrated in and around Mangalore. It is obvious that this concentration is due to the availability of port facility as the marine products are export oriented. Of the 275 tonnes of ice capacity as much as 133 tonnes, of the 255 tonnes of cold storage capacity as much as 140 tonnes, of the 46 tonnes of daily freezing capacity as much as 14 tonnes and of the 1,110 tonnes of frozen storage capacity as much as 605 tonnes are located in and around Mangalore city. Numerically 21 out of 40 units are located in this area. Malpe, even though accounts for only four preservation units, possesses little over the freezing capacity of Mangalore, (14.5 tonnes of daily freezing capacity) and about half of its frozen storage capacity (300 tonnes). However, it has only a 30 tonnes ice production capacity per day (only two units have this facility) and a cold storage capacity of 50 tonnes (only one unit). It is observed that Mangalore and Malpe together account for about 60 per cent of ice production, 75 per cent of cold storage, 58 per cent of freezing and 81 per cent of frozen storage capacity of the district.

Government's subsidy schemes have helped the development of these private preservation units. For example, during the year 1974-75. As already noted in the chapter on finance (Table 31) between 1970-71 and 1974-75 a total subsidy of about Rs.8.73 lakhs has been provided in 46 cases of installation of preservation units in the district.

Other Preservation Units:

Apart from the above 40 private preservation units there are two other units, one in public sector and the other in the co-operative sector, which together provide a substantial preservation facilities in the district.

The Karnataka Fisheries Development Corporation has total preservation facilities of 72 tonnes of ice production capacity per day, 197 tonnes of cold storage capacity, 42.5 tonnes of freezing capacity per day and 850 tonnes of frozen storage capacity. Some of these plants are located in the district of north kanara and some in other districts of the state. However, south kanara district has the lion's share in these facilities with 51 tonnes of ice production capacity per day, 140 tonnes of cold storage, 27.5 tonnes of freezing capacity per day and 800 tonnes of frozen storage capacity. In percentage terms, the district has 71 per cent of the ice production capacity, 71 per cent of cold storage, 65 per cent of freezing capacity and 94 per cent of the frozen storage capacity of the Corporation. The region-wise distribution of these facilities within the district are provided in Table 51.

South Kanara District Co-operative Fish Marketing Federation also possesses some preservation facilities. It has a daily ice production capacity of 10 tonnes, cold storage capacity of 30 tonnes, daily freezing capacity of 6 tonnes and a frozen storage capacity of 100 tonnes.

Table 51: Region-wise distribution details of Preservation Facilities of the Corporation in South Kanara.

(capacity in tonnes)

Sl. No.	Location	Ice production capacity per day	Cold storage	Freezing capacity per day.	Frozen Storage
1.	Ullal	10	30	7.5	200
2.	Mangalore	5	30	5.0	200
3.	Kulai	10	30	7.5	200
4.	Moolki	4	..	..	..
5.	Kaup	5	10	..	..
6.	Manur	5	10	..	..
7.	Coondapur	2	..	..	..
8.	Gangolli	10	30	7.5	200
	Total	51	140	27.5	800

Source: KFDC, A Note on the Progress Achieved, 1975.

Thus, the district possesses total preservation facilities of 336 tonnes of ice production per day, 425 tonnes of cold storage, 79.5 tonnes of freezing per day and 2,010 tonnes of frozen storage. The ownership of these facilities by the private units, the Corporation and the Federation and their relative shares in the total are clearly depicted in Table 52.

The Fish Marketing Federation has a minor share in the total preservation facilities of the district, whereas as is evident from Table 52, the Karnataka Fisheries Development Corporation, as a single unit, owns substantial preservation facilities in the district. It accounts for the 15.2 per cent of total daily ice production capacity, 32.9 per cent of the total cold storage capacity, 34.6 per cent of the total daily freezing capacity and 39.8 per cent of the total frozen capacity of the district. It should be noted that the Corporation's plants are located in areas where some of these facilities are not available. For example, at Ullal and Kulai there is no private unit with cold storage facility but the Corporation has 30 tonnes cold storage at each place.

Table 52: Total Preservation Facilities in the District and their ownership as between Private Units and others.

(Capacities in tonnes)

Sl. No.	Ownership	Ice production per day	Cold storage	Freezing capacity per day	Frozen Storage
1.	Private Units	275 (81.8)	255 (60.0)	46.0 (57.9)	1,110 (55.2)
2.	K.F.D.C.	51 (15.2)	140 (32.9)	27.5 (34.6)	800 (39.8)
3.	S.K.D.C.F.M.F.	10 (3.0)	30 (7.1)	6.0 (7.5)	100 (5.0)
	Total	336	425	79.5	2,010

Note: Figures in brackets indicate the percentage share of each category of ownership in respective preservation facilities.

Source:
1. Deputy Director of Fisheries, Mangalore.
2. KFDC
3. Federation.

Similarly, Gangolli where there is no private unit with facilities of cold storage, freezing and frozen storage facilities, the Corporation has 30 tonnes cold storage, 7.5 tonnes of freezing per day and 200 tonnes of frozen storage. Gangolli is located at the northern-most part of the district and it is an important landing centre where the availability of such facilities is of crucial importance. So is the case with regard to the Corporation's ice plants at Coondapur, Moolki, Kaup and Manur. If the Corporation fills the gaps in some areas, in other areas like in Kulai and Mangalore, as also in Ullal, it supplements the preservation facilities already existing under the private ownership. However, it should be pointed out here that most of these facilities provided by the Corporation were originally established by the government through Fisheries Department and upon the establishment of the Corporation, they were handed over to it. Thus, during 1955-1975 the private enterpreneurs established their preservation units either where they were not already available from the Government/Corporation, or where such facilities were found inadequate. Preservation units involve huge initial capital outlay and require substantial working capital due to high operating costs and hence it is obvious that a private entrepreneur would normally establish them only when it is inevitable for his business. This is despite the subsidy provided by the government. If these facilities are easily available on hire, a private entrepreneur would always prefer them to investing his own capital. Notwithstanding this, it is observed that privately owned preservation units in the district account for as much as 81.8 per cent of total daily ice production capacity, 60.0 per cent of the total cold storage capacity, 57.9 per cent of the total daily freezing capacity and 55.2 per cent of the total frozen storage capacity in the district. This could as well be an indicator of the general prosperity of the marine products industry over the years.

Future Requirements:

The plans to intensify the exports of marine products ultimately demand greater preservation facilities. During the survey of processing and export units the inadequacy of preservation facilities was pointed out and a firm demand was put forth for the creation of greater capacities. Some private units are having plans to expand their present capacities and many asked for greater financial support from the government. Some units have even suggested that the present sales tax on the ice sale should be withdrawn to encourage the growth of marine products industry in general and the preservation units in particular. Some units have also sought greater concessions in the power tariffs as, it was claimed, the requirement of power is not only greater in this industry but also the plant capacity is fully utilised only during a particular part of the year when the processing units are in full swing. And during the lean period there is substantial idle capacity which leads to high operational costs.

The Karnataka Fisheries Development Corporation has plans to set up three more preservation plants to cater to the requirement of this industry. First one is to set up a 20 tonnes ice plant near its freezing plant at Hoige Bazar, Mangalore. Second one is to install freezers in its ice and cold storage plant. Third is to set up an ice plant at Bijadi.

It is worth pointing out here that Marine Products Export Development Authority, Cochin, has recently laid the foundation stone for a 1,000 tonnes frozen storage facility at Cochin. This plant has a provision for a further expansion of the capacity to 2,000 tonnes. MPEDA also has plans on hand to set up its second frozen storage at Calcutta (500 tonnes frozen storage). Similar storage facilities are envisaged also in major ports like Bombay and Madras. The absence of Mangalore (on south kanara in general) in its list of such programme is highly conspicuous. It is to be remembered here that Mangalore Port occupies third place, only after Cochin and Bombay, in the value of marine products exports of the country. With not very satisfactory financial conditions of the Karnataka Fisheries Development Corporation and with obvious financial and other restraints on the part of the private entrepreneurs it is necessary that MPEDA puts up some preservation at Mangalore; or at Malpe which is being developed as a major fishing harbour in the district.

Such an act on the part of MPEDA would go a long way in the development and stabilisation of marine products industry in the district.

Processing Units

The traditional system of processing had been to sun dry and salt cure the fishes for future consumption, or for consumption at distant places. Naturally, earlier the export consisted of sun dried and salt cured marine products. However, the late fifties saw the beginning of a change in the processing from traditional ones to more modern ones, like frozen and canned, due to the changing needs of the existing markets and due to the needs of the new markets. The export drive towards hard currency areas had its own impact on the processing methods. All these made the marine fisheries an important and profitable commercial enterprise. Mechanisation of marine fishery industry was only an obvious concomitant of it. With fishery industry becoming more and more commercial, more and more modern technology was induced into its every facet. Development of fish oil, fish meal, canned marine products, fish manure are only a few examples of diversification in processing methods.

i) Freezing Units: What is true of the fishery industry of the country as a whole, is equally true of its counterpart in the south kanara district. Gradually, the curing yards have come to a close and the salt subsidy has been withdrawn. The processing has now got shifted to freezing. As is seen in Chapter IX, the processing industry is now mainly based on freezing. Under preservation it is seen that there are only 18 units (16 in private sector, one in state public sector, one in co-operative sector), with a total daily freezing capacity of 85.5 tonnes and a total frozen storage capacity of 2,010 tonnes. Of these 18 units there were 6 units which had only the freezing capacity (12.5 tonnes per day). Other 12 units had both freezing capacity and frozen storage capacity. However, the list of exporting units of the district states that in 1973-74, there were 55 units which exported the frozen products, mainly the shrimps. (This number came down to 42 in the year 1974-75). Such a discrepancy in the number of actual processing units and the number of exporting units could be accounted by two reasons: Firstly, one and the same processing unit might be exporting its frozen products through more than one exporting agencies of its own. This might be due to tax planning, or due to better market penetration by offering the buyers some competing brands. Secondly, there could be some "pure exporters" i.e., those who have no processing facilities of their own but export the frozen marine products either buying them direct from the processing units or hiring the processing facilities from those who have such facilities. It is to be pointed out here that the Corporation as well as the Federation lease out their processing and preservation facilities to the private parties

ii) Canning Units: There were following thirteen canning units in the district:

1. South Kanara District Fish Marketing Federation, (SKDFMF), Mangalore.
2. Canning Industries, Cochin, Ltd. (CAICO), Ullal.
3. Mulbery Aquatics, Ullal.
4. Madonna Frozen Foods, Mukka.
5. Bharat Industries and Canning Company, Kaup.
6. Vijayalaxmi Canning Industries, Kaup.
7. National Marine Products, Udyawara.
8. Sowcar Sea-food, Udyawara.
9. St. Judes Canning Company, Sasthan.
10. Coronet Canning Company, Malpe.
11. Vikram Fishing Company, Malpe.
12. Mysore Canning Industries, Coondapur.
13. M.H. Khaji Jumnad and Company, Gangolly.

The canning units have not been very active. It is quite obvious from the quantity of marine fish canned, (as seen in Chapter IX.) This situation is broadly due to two reasons: firstly, there is no well developed internal market for canned marine products. The high cost of canned product does not fit into the country's socio-economic framework. Secondly, there is not much demand for Indian canned marine products in the foreign markets. It is found that the purchases by the Defence Department have been substantially responsible for whatever canning is being done at present.

The exact canning capacities of each of these units could not be ascertained. Even during the survey of some of these units such data were either not made available or they were provided in non-comparable forms; some gave their canning capacity in tonnes, some others in terms of cases; still some others in number of cans per day. Even the Fisheries Department as also the industrial survey conducted by the Department of Small Scale Industries do not give a comparable or comprehensive data on the production capacities of these canning units.

iii) Fish Oil Units: There are five units which are listed as fish oil manufacturers, and they are:

1. Mukka Oil and Food Industries, Mukka.
2. Bava Fish Oil Products, Mukka
3. Coronet Oil and Meal Company, Malpe.
4. Khaji Shamshuddin, Gangolly.
5. South Arabian Sea Produce, Coondapur.

The Coronet Oil and Meal Company has a production capacity of 20 tonnes a year. Capacities of other units were not available.

However, it is observed that fish oil manufacturing is also being carried out by several other private parties on small scales and with traditional technology. Such units were seen functioning at Ullal and Baikampady. There could be many more of such units all along the district's coast. Though, it should be added here that they are only fair weather units and do not have regular operation on a long term basis. When a particular fish is found in abundance, especially the oil sardines, and is accompanied with favourably low prices, and when the fish oil market is profitable, only then these units reactivate their operation. Otherwise, they remain idle. As not much of machinery is involved and as the technology followed is crude and traditional these units are able to operate in such a staggering way.

iv) Fish Meal: Following twelve units are listed as fish meal manufacturers in the district:

1. Haji Abdul Khader Bava and Sons, Mangalore.
2. Brothers' Fisheries, Mangalore.
3. Coastal Fisheries, Mangalore.
4. Wibs Products, Mangalore.
5. Mangalore Marine Products, Kulai.
6. Mukka Oil and Foods Industries, Mukka.
7. Bawa Fish Meal, Mukka.
8. Patil and Kaisar, Hejmadi.
9. Canara Marine Products, Hejmadi.
10. Coronet Fish Meal Industries, Malpe.
11. South Arabian Sea Produce, Coondapur.
12. Canara Marine Fertilizers, Gangolly.

Some of the above fish meal units are also engaged in manufacture of fish manure. The Corporation is having plan to put up two fish meal plants, one each at Kulai and Gangolli. The Coastal Fisheries has plans to automatise and expand its plant, so as to enable export of its product. The Kwality Sea-foods has plans to put up a fish meal unit.

Geographical Dispersal of Preserving and Processing Facilities:

The taluk-wise locational analysis of the preservation and processing facilities is provided in Table 53.

Table 53: Taluk-wise Location of Preserving and Processing Facilities.

Sl. No.	Type of unit	Mangalore Taluk	Udupi Taluk	Coondapur Taluk	Total
1.	Ice Plants	22	10	4	36
2.	Cold Storage Plants	9	1	3	13
3.	Freezing Plants	12	7	2	21
4.	Frozen Storage Plants	12	4	2	18
5.	Canning Plants	4	7	2	13
6.	Fish Oil Plants	2	1	2	5
7.	Fish Meal Plants	7	3	2	12
	Total	68	33	17	118

Note: The table is based on different types of plant facilities, and not on "unit" basis.

Data source: 1. Assistant Director of Fisheries, Mangalore.
2. Survey of Processing Units.

It can be seen from Table 53 that there is a high degree of concentration of preservation and processing plants in Mangalore Taluk (spread between Ullal in the south to Moolki in the north all along the coast). In percentage terms this taluk accounts for 57.6 per cent of total such plants of the district. Udupi taluk (from Hejmadi to Manur) accounts for 28.0 per cent. The share of Coondapur taluk (Kumbashi to Shiroor) is only 14.4 per cent. The distance between the Mangalore city and Malpe (near Udupi) is around 60 kms. Thus, nearly 86 per cent of these preservation and processing plants are concentrated within a distance of about 70 kms - from Ullal in the extreme south to Malpe in the north. As is seen earlier this part of the coast is rich in marine life. The availability of requisite facilities at New Mangalore Port is an added advantage of this area.

However, with the development of Malpe as a fishing harbour and with possible adverse effects on the marine fauna around Mangalore coast due to upcoming industrial complex and the New Mangalore Port at Panambur, there is every possibility of new processing and preservation units getting concentrated in and around Malpe region in the near future.

Major Findings of Survey:

A survey was conducted with an intention of appraising the structural pattern of processing units. A very detailed questionnaire was used in the survey. It was intended to cover maximum number of such units. However, only 17 private units plus the Corporation and the Federation provided the necessary information. Following processing units were covered under the survey:

Sl.No.	Name	Year of establishment
1.(a)	Coronet Canning Company, Malpe	1959
(b)	Coronet Freezing and Ice Storage Company, Malpe.	1964
(c)	Coronet Fish Meal and Oil Company, Malpe	1968
2.	Madonna Canning Company, Mukka	1964
3.	Canara Sea Foods Packers, Udyawara.	1966
4.	Sowkar Canning Company, Udyawara.	1968.
5.	Apollo Sea Foods, Mangalore.	1969
6.	Vijayalakshmi Canning Industries, Kaup.	1969
7.	Kwality Sea Foods, Mangalore.	1969
8.	Coastal Fisheries, Mangalore.	1970
9.	Sterling Foods, Mangalore.	1971
10.	Vikram Fishing Company, Malpe.	1973
11.	Western Foods, Mangalore.	1973
12.	Central Sea Way, Ullal.	1973
13.	Sandra Fisheries, Mangalore.	1973
14.	Shrisons Sea Foods, Malpe	1973
15.	National Marine Products, Udyawara.	1973
16.	Silverline Sea Foods, Baikampady.	1975
17.	Mangalore Fisheries, Ullal.	1975

As the KFDC and Federation are studied in detail in separate chapters they are excluded from the analysis of this survey.

Fifteen out of seventeen units in the survey (excluding Vijayalakshmi Canning Industry and Coastal Fisheries) accounted for over 50 per cent of quantity of frozen shrimps exported from the district in the year 1974-75. They also accounted for more than 50 per cent of value of such exports. Eight units covered in the survey accounted for about 50 per cent of the daily freezing capacity and 50 per cent of total frozen storage capacity of all the private units in the district. Hence the sample is quite representative of the industry as a whole.

Coronet Canning Company, Malpe, is the oldest private processing unit in the district. Its commissioning in the year 1959 is recorded as a milestone in the development of fishery industry in the district. This unit has two sister concerns at Malpe: Coronet Freezing and Ice Storage Company (established in 1964); and the Coronet Fish Meal and Oil Company (established in 1968), apart from Coronet Ice and Cold Storage unit at Karwar in North Kanara district. This unit is indirectly connected with some more processing and export units in the district. Of the remaining 16 processing units only 8 were established between 1964-1971; as many as 6 were established in the year 1973 alone, and 2 in the year 1975. This is quite an indicator of the fact that this industry has started expanding very recently.

i) Capital Structure: The industry is capital intensive. Five units had a capital base of more than Rs.10 lakhs, three between Rs.5 - 10 lakhs, eight between Rs. 1 - 5 lakhs and only one had capital of less than Rs. 1 lakh (and this unit was only a marine products packers). It is also found that six units in the survey had some other business apart from marine products processing and/or exports.

Bank financing of this industry is significantly high. As against the total owned capital of about Rs.128 lakhs for these seventeen units bank financing was disclosed at about Rs.120 lakhs. At least in four cases the total bank financingof each of such unit exceeded its owned capital base. In many cases it was either equal to owned capital or very much nearer to it. This proves the findings of Chapter VIII on Finance.

Processing units feel that as this industry is seasonal and "risky" the bank finance should be made available to them on a concessional rate of interest befitting the nature of this industry. Suitable policy changes by RBI and by the Central Government have been sought by many a unit in the survey.

ii) Ownership Pattern: There were three individually owned, ten partnership owned and four joint family owned concerns in the survey. Even though partnership seems to be more popular form of ownership and obviously so due to capital intensive nature of the industry, most of such partnerships were either within the family or with near relations. Thus, whatever might be the external appearance of the ownership pattern, like for the purposes of tax and bank security, this industry is still family based. Obviously, only those families with adequate resources to back them up could enter this business.

iii) Raw Material Procurement and Prices: Only six units, which, incidentally, constituted the leading processing and export units, owned their own boats. Amongst themselves they owned 26 mechanised boats: one owned 8 mechanised boats, another 7 mechanised boats, another 4 mechanised boats, yet another 3 boats and 2 units owned 2 mechanised boats each. Excepting for one unit, which self financed its fleet of seven boats, in the case of all the other units banks had financed the purchase of boats. These boats enabled the owning units to procure themselves a part of their raw material requirements.

One unit which did not own any mechanised boat of its own procured 40 such boats on contract basis from their owners.

Ten units, including those with own boats, procured their raw materials from all the three sources: through middlemen, through auctions and through the Federation. Three units bought their requirements exclusively from the middlemen. Two units procured both from middlemen and the Federation. One procured it from middlemen and through auction. Only one unit stated that it procured all its raw materials requirements exclusively through the Federation.

It is quite revealing that the middlemen play important role in the purchase of the raw materials by the processing units. Sixteen out of the seventeen units surveyed stated that they bought their requirements through them, whereas only thirteen procured through the Federation. This feature has to be seen in the light of increasing losses of the Federation and the decreasing disposal through it of catches by the fishermen whose mechanised boats it has financed.

There is a general feeling of high competition amongst processing units themselves for the raw material as sale is through auction. A majority of the processing units feel that the prices of raw materials are high and are not in consonance with the prices of processed products in the foreign markets. Hence, some units feel that the auction method of raw material sale followed by the Federation should be replaced by periodically revised fixed prices, such fixed prices should be based on the fluctuations of the prices of processed products in the international markets.

iv) Leasing Processing Facilities: Leasing of preservation and processing facilities from other units is a common feature. Out of 17 units as many as 10 units leased such facilities from others. These included a few units which had their own facilities as well. Seven of these units leased such facilities from the Corporation and two from other private units. The remaining one unit was fish meal plant with its own facilities and leased further facilities from another private unit whenever such need was felt.

Two units in the survey stated that they lent their facilities to others.

v) Capacity Utilisation: That this industry is seasonal is revealed by the period and the extent of plant capacity utilisation. Thirteen units provided information on this. Of these only three could utilise their capacities for 300 days in the year 1974-75, one for 240 days, seven for between 150 to 200 days and the remaining two for less than 150 days.

All the units except one, normally worked on single shift and went on to double shift only for a few peak months of the year. Only one unit stated to have worked on double shift all through the year 1974.

vi) Transport Vehicles: Most of the units possess their own transport vehicles. Thirteen units owned amongst themselves 31 transport vehicles, 2 freezer lorries, 9 insulated lorried, 4 semi-insulated lorries, 13 other types of lorries and 3 vans. Three units hired the required transport vehicles from elsewhere. One unit did not answer this question.

These sixteen units hired 11 transport vehicles from outside. They included 3 freezer lorries, 1 insulated lorry, 4 other lorries and 3 vans.

There is a feeling that as the special transport vehicles, like freezer, insulated or semi-insulated, require a substantial capital investment, which not all the units could possibly afford, agencies like the Corporation should provide them on hire basis. Also some smaller vehicles with such facilities, i.e., vans, should be provided on hire in larger number, as they have lesser operational cost, are more versatile in use and are very much suitable to this industry. The present service in this regard of the Corporation is found inadequate and wanting in times of need due to improper maintenance of such vehicles.

vii) Foreign Collaborations: Even though there is not any unanimous opinion on the need for foreign collaboration in the field of marine product processing, at least a majority of two-thirds of the units in the survey felt that there should be some sort of such collaboration. Their feeling is that this industry being highly export based, such collaboration would be in its own interest. It can assure a guaranteed market and favourable prices. One unit wanted such collaboration in the field of deep sea fishing.

viii) Method of Sale: The direct sale to the customers in the foreign markets is most prevalent practice. Only three units resorted to sale through agents. One unit used both the channels.

ix) Taxes and Incentives: The units were unanimous in criticising the existing 4 per cent purchase (sales) tax on the procurement of their raw materials. All of them want this tax to be withdrawn. It is felt that this acts as a penal tax as their industry is not only seasonal but also is constantly faced with uncertain raw material supply. Also it is felt that as the "shrimp", the main raw material of this industry is perishable and 100 per cent export oriented item, it should be considered only as a "fish" for the tax purposes. Treating this industry at par with any other industry is considered basically a wrong policy.

It is pointed out that there is no tax on fish meal in neighbouring Maharashtra State, whereas the Karnataka Government levies such a tax. It is injurious to the fish meal industry.

More or less an unamimous opinion was expressed against the existing export incentive of import entitlement. This industry prefers a straight away cash subsidy, say 10 per cent on their exports, to the existing one. As this industry is earning the country valuable foreign exchange the units ask for more assistance and incentives from the governments - both the Central and the State.

x) Role of the Corporation and the Federation: A substantial majority in the units surveyed were not happy with the role of the Corporation in the development of this industry. Many units were categorical in their opinion that "no help whatsoever" was rendered to them by the Corporation. Some others opined that help rendered is far inadequate to their real requirements. More freezer, insulated, semi-insulated vehicles, more ice plants, more cold and frozen storage are expected from the Corporation.

It is interesting to note that some units did not like the idea of Corporation entering into the export trade and thus act as a competitor to them. They feel that its role should be purely developmental and not commercial.

A leading processing unit with substantial share in exports of the district has the following to say about the role of the Federation vis-a-vis fishery industry and this opinion is generally applicable to the processing industry as a whole:

"The Federation is trying to monopolise every activity of the manufacturers. Even in the case of their own catches the manufacturers are not supposed to get the catches directly - they have to pass through the Federation. And it levies a commission for this channelisation of catches, whereas the Federation does not provide the manufacturers any service.

The present working of the Federation shows concern only for fishermen and the mechanised boats - which is more detrimental to the industry as a whole.

The cash security of Rs.10,000 per token to enter auction and an additional security of Rs.5,000 for each centre has to be provided by the manufacturers. It does not accept the bank guarantee. However, no interest is paid on such cash deposits.

The possession of token does not always assure of raw material. The Federation follows a policy of "highest possible price to the fishermen". In the process if the prices are not considered "high enough", then outsiders without possessing any tokens are allowed to make purchases, just to boost up the prices.

In Karwar (North Kanara) a certain price is maintained for a week and no auctioning is done. However, if the Federation here is very much for auction system only then, it should be strictly followed, irrespective of catches and prices.

The Federation should provide the manufacturers clean fish landing places, places for fish drying and more freezing and storage facilities than at present".

xi) Role of MPEDA: Sixteen out of seventeen units in the survey were members of Marine Products Exports Development Authority, Cochin. However, their experience of its membership has not been satisfactory. The opinion on this issue was quite unanimous.

First and the foremost, it is felt that as south kanara constitutes an important centre for marine products export and now that Mangalore has a major port, MPEDA should open up its regional office at Mangalore.

Secondly, at present its membership is said to be helpful only in procuring licences and nothing more.

Thirdly, it is felt that communication from MPEDA is restricted to routine circulars. In the case of one particular unit its membership application has been said to be pending finalisation for one year.

Fourthly, the activities of MPEDA is said to be confined to the field of frozen and canned goods, whereas no assistance is said to be provided for the export of fish meal and fish oil.

All the units unanimously expressed the desire for more active and constructive role from MPEDA. They expect proper guidance at every stage. This will be possible only when there is a regional office at Mangalore.

xii) Other Issues: Fish meal and fish oil processing units find unhealthy competition from those units which produce these products with crude methods.

With regard to the processing machinery, many a unit feels that import of modern and automatic machinery should be permitted. It is felt that even though indigenous machinery is available, the performance is not as good as imported machinery and the capacity of such machinery is small. The need for importing machinery is based on two grounds: Firstly, this industry is earning more than four hundred lakhs of rupees every year in foreign exchange; secondly, the major portion of its produce is meant for export market where demand for quality is very high. Such opinion was also shared by some fish meal and fish oil processing units.

There is a common opinion that the packaging materials which play crucial role in the export markets, are easily available and that their prices are reasonable.

It is interesting to note the unanimous opinion of the units that there is no abnormal or unhealthy competition for them in the international markets, either from the foreign processors or even from their Indian counter-parts.

With regard to the fishing harbour facilities, it is felt that at least three to four fishing harbours with all amenities for unloading of boats and preservation of fish should be made available. Some feel that landing facilities at present are not up to the requirements, there is much uncleanliness and jetties are not useworthy. Even at the Mangalore Hoige Bazaar landing centre the jetties are practically unuseworthy.

Some units feel that shipping facilities for the Continent should be available at Mangalore Port.

The existing units, are apprehensive of large Corporations whom they call big business houses, entering into this industry. It is feared that with their unlimited financial backing and international contacts these big business houses might endanger the very existence of the present "small" units who have nursed the industry at "great risks". Some units have called for governmental prohibition on the entry of such big business houses into this industry.

A majority of the units feels good future prospects for this industry and have plans for expansion and diversification.

Processing Technology

In the past twenty years the fishery industry of the district has seen a significant progress. However, the progress has been mainly based on "easy and secured paths". The entire processing and export trade in this industry has been concentrated on a single species (prawns), a single process (frozen) and a single market (United States until very recently and Japan at present). Even though, this has provided sufficient scope for the early growth of fishery industry in the district, its continuation on these lines is not only doubtful but also risky. By now crores of rupees of capital has been sunk in this industry; in the mechanisation of fishing, in the establishment of preservation and processing units and substantial funds are in the pipe-line of the marine products exports trade. Therefore, it is essential that this industry should broaden its base, commodity-wise as well as market-wise, to ensure its future existence and progress. For this, the diversification of processing is essential. Several technological institutes have been conducting researches on these lines.

1. Government Technological Unit, Malpe:

In the past the technological unit of the Fisheries

Department has played an active role in conducting researches into much required diversification. The role of this unit has already been seen in detail in Chapter VI.

2. Central Food Technological Research Institute, Mysore:

For sometime in the past years the Central Food Technological Institute, Mysore, has been conducting its own research into fish and processing technology. Institute has come out with many new products and processes which can easily be utilised in the marine fishery industry of the district.

3. Fisheries College, Mangalore:

The Fisheries College, Mangalore, was established in the year 1969 as a constituent college of the University of Agricultural Sciences, Bangalore. It is the first college of its type in India. The Marine Products Processing Training Centre, which was started with Indo-Japanese collaboration in 1963, formed the nucleus for the establishment of this college. The main objectives of the college are:

i) To train technically qualified personnel, both at degree level and at post-graduate diploma-level;
ii) to conduct development oriented research activities; and
iii) to disseminate the end results of research to fish farmers by extension work.

Among the courses offered by the college include (1) Fishery Biology, (2) Fish Culture, (3) Fishery Oceanography and Limnology, (4) Fishery Resources and Economics, (5) Fishery Technology (Freezing), (6) Fishery Technology (Canning), (7) Fishery Technology (Ham and Sausage), (8) Fishery Technology (Bye-products) and (9) Fishery Engineering.

Need to Exploit Research Findings:

Thus, the district and the marine fishery industry possesses the requisite research facilities for its future diversification. The need is that the processing and exporting units come out of their sheltered existence to much more adventurous fields. This will be in their own future interest, as well as in the interest of the marine industrial in general.

Labour in Preservation and Processing Units

Characteristics of the Labour Force:

As compared with other industries the preservation and processing industry has certain special characteristic features of its own. As these features have a direct bearing on its labour relations it would be necessary to enumerate them here, even though they have been considered elsewhere in different contexts.

First and the foremost, the industry is quite new - hardly twenty years old - and is in the process of being stabilised. Secondly, being a good foreign exchange earner and practically wholly export based, attracts liber treatment from the government. Thirdly, it is capital intensive.

Fourthly, being capital intensive, only people and families with riches have got control over this industry. Fifthly, the raw material base as well as the foreign market situations are normally stable, and unpredictable, which in turn makes this industry a risky one. Sixthly due to the seasonal nature of the industry, i.e., being operated during only a part of the year, permanent employment cannot be provided to a large labour force. Lastly, even the major portion of the type of labour required is not a skilled one. The analysis of the information (Table 54) made available by the seventeen units of the survey confirms some of these points.

Table 54: Employment Details of Seventeen Private Preservation and Processing Units.

Nature of Employment	Permanent	Per cent to total labour force	Temporary	Per cent to total labour force	Total
Unskilled	163	(15.7)	875	(84.3)	1,038
Skilled	168	(94.4)	10	(5.6)	178
Supervisory and Managerial.	61	(98.4)	1	(1.6)	62
Total	392	(30.7)	886	(69.3)	1,278

Note: Figures in brackets indicate percentage shares in total.

Source: Preservation and Processing Units Survey.

It can be seen from the Table 54 that in seventeen units (with a capital outlay of more than Rs.2 crores (both owned and debt capital) and accounting for more than 50 per cent of marine products exports) only 1,278 persons are provided with direct employment. Of these 1,278 persons employed, only about 31 per cent were provided with permanent employment and the remaining 69 per cent were temporarily employed. Eighty one per cent of the employees were unskilled labour, 14 per cent was skilled labour and only 5 per cent accounted for the supervisory and managerial cadres.

As much as 84 per cent of the unskilled labour was temporarily employed and only 16 per cent was permanently employed, whereas in the case of skilled labour 94 per cent was permanently employed and only 6 per cent was temporarily employed. The supervisory and managerial force was the most secured as nearly 99 per cent of this category was permanently employed.

It is this major component of temporary unskilled labour, with vulnerability of losing whatever little employment opportunities it has, and small proportion of skilled permanent employees that are responsible for small number of disputes in this industry.

Labour Problems:

One significant feature of labour in this industry is that the labour force consists of mainly female workers. As the work involves peeling of prawns and cleaning of other fishes before they are processed women labour is preferred due to their dexterity in such jobs. The labour is between the age group of 10 - 60 years. Young girls around 10 years age working in the processing plant is not an uncommon sight. Due to this very special feature of the labour force certain special problems are confronted. In the past some small scale research studies have been conducted on such problems. It is revealed that as young girls are liable to discontinue the work once they are married the processing units naturally preferred them to married women. This solves for them the problem of making worker permanent and also works out economically viable proposition for the processing units.

In the majority of the cases the labour is not provided with any gloves to protect their hands from freezing cold raw materials with which they work. As a consequence their hands are affected by the constant touch with wet and cold prawns and fishes. Most of the work is to be done standing and due to the very nature of work the floor is always wet. In short, the working conditions in most of the units are far from being satisfactory. However, most of the units are registered under the Factories Act.

Besides, when the landings are late in the evenings, as the perishable raw materials cannot be kept unprocessed for long time, call of duty makes the workers to work till late in the night. This exposes them to exploitations.

The existence of labour contractors is also not very uncommon. This intermediary further enhances the exploitation of labour.

Collective organisation among labour does not seem to be very active. The Labour Department, South Kanara, provides the name of only one trade union of this industry - South Kanara Canning Workers Union, Udupi. This Union was registered in the year 1974 and its total membership is 197, of which 117 are women. It is affiliated to AITUC. However, the details of disputes reveal that some of the workers in this industry are members of some other trade unions. A large section of the workers, being women and that too temporary workers, trade unionism has not found a strong base, in this industry.

This lack of labour organisation and the special characteristic feature of labour in this industry is clearly reflected in the number of disputes recorded. Table 55 provides the year-wise break-up of labour disputes in this industry between 1969-1975.

Only 17 cases of labour disputes have been recorded in this industry during the seven year period of 1969 to 1975. Of these 17 disputes, 12 related to the preservation and processing units and the remaining 5 to the other areas of the industry. It is to be noted that out of the 12 disputes in the preservation and processing units, 4 disputes related to the Federation and the remaining eight to the private units. Also, it is found that only 5 units were involved in these disputes. One unit was involved in 3 disputes, another in two disputes and the remaining three had one dispute each.

Table 55: Year-wise break-up of the Labour Disputes in Fishery Industry:

Sl. No.	Year	Preservation and Processing Units	Other Units	Total Disputes
1.	1969	-	3	3
2.	1970	-	1	1
3.	1971	1	-	1
4.	1972	4	-	4
5.	1973	-	-	-
6.	1974	3	1	4
7.	1975	4	-	4
		12	5	17

Data source: Labour Officer, South Kanara, Mangalore.

Industry's View:

Almost all the units surveyed expressed their relations with labour as satisfactory. However, one unit which stated to have only permanent workers was of the opinion that "due to uncertainty of catches proper utilisation of labour for full 8 hours is not possible. Labour laws should be revised for this industry. The employment of women labour during night shift should be permitted".

An Overall View of the Labour Relations:

It should be confessed that the labour problem in this industry poses a paradoxical situation. On the one hand, units seem to be justified in not being able to hire workers on permanent basis due to uncertainties of catches and markets. On the other hand, labour is visibly exploited. But it would not be very much wrong if looking into the current conditions, it is stated that labour constitutes one of the shock absorbers of this industry. It very much minimises the risk element, which otherwise is exaggerated.

Chapter XI

EXPORTS

The export of marine products has seen a tremendous positive change since the year 1956. The share of Mangalore port in the total marine products exports of the country was 5 per cent in the year 1971 and it had occupied the fourth place among the various ports, whereas the share has increased to 10 per cent in the year 1974 and it has been pushed up to the third place.

Two factors could clearly be identified for this significant change. Firstly, an active private sector and the participative governmental actions in establishing a chain of preservation and processing units to exploit the export markets readily available for the marine products of the district. Secondly, the opening of the New Mangalore Port in 1974, which has been provided with the much required facilities of a major port for the district, quick and economic exports.

Trend in Marine Products Exports:

The quantity and value of exports of the marine products from the district, through Mangalore Port and the value of such exports for ten years, 1965-66 to 1974-75, are provided in the Table 56.

Table 56: Exports of Marine Products from Mangalore Port, between 1965-66 and 1974-75.

Year	Quantity (in Tonnes)	Value (rupees in lakhs)
1965-66	390	21.31
1966-67	715	29.52
1967-68	542	54.08
1968-69	418	36.72
1969-70	1,209	89.21
1970-71	1,035	82.80
1971-72	1,955	213.75
1972-73	3,040	465.73
1973-74	4,714	682.25
1974-75	3,754	497.28

Source: Customs Office, Mangalore Port.

It can be seen from Table 56 that between 1965-66 and and 1974-75 the quantity of marine products exports has increased more than nine folds, from 390 tonnes to 3,754 tonnes. The value of such exports, during the same period, however, shows a phenomenal increase of nearly 25 times, from a small figure of Rs.21.31 lakhs to Rs.497.28 lakhs. It is also seen that the trend in exports, both in quantity and value, has been staggering during the five year period of 1965-66 to 1969-70, whereas during the second five years of 1970-71 to 1974-75, excepting for the year 1974-75, there has been a steady increasing trend. The average quantity of exports is more than four times higher during the second five years at

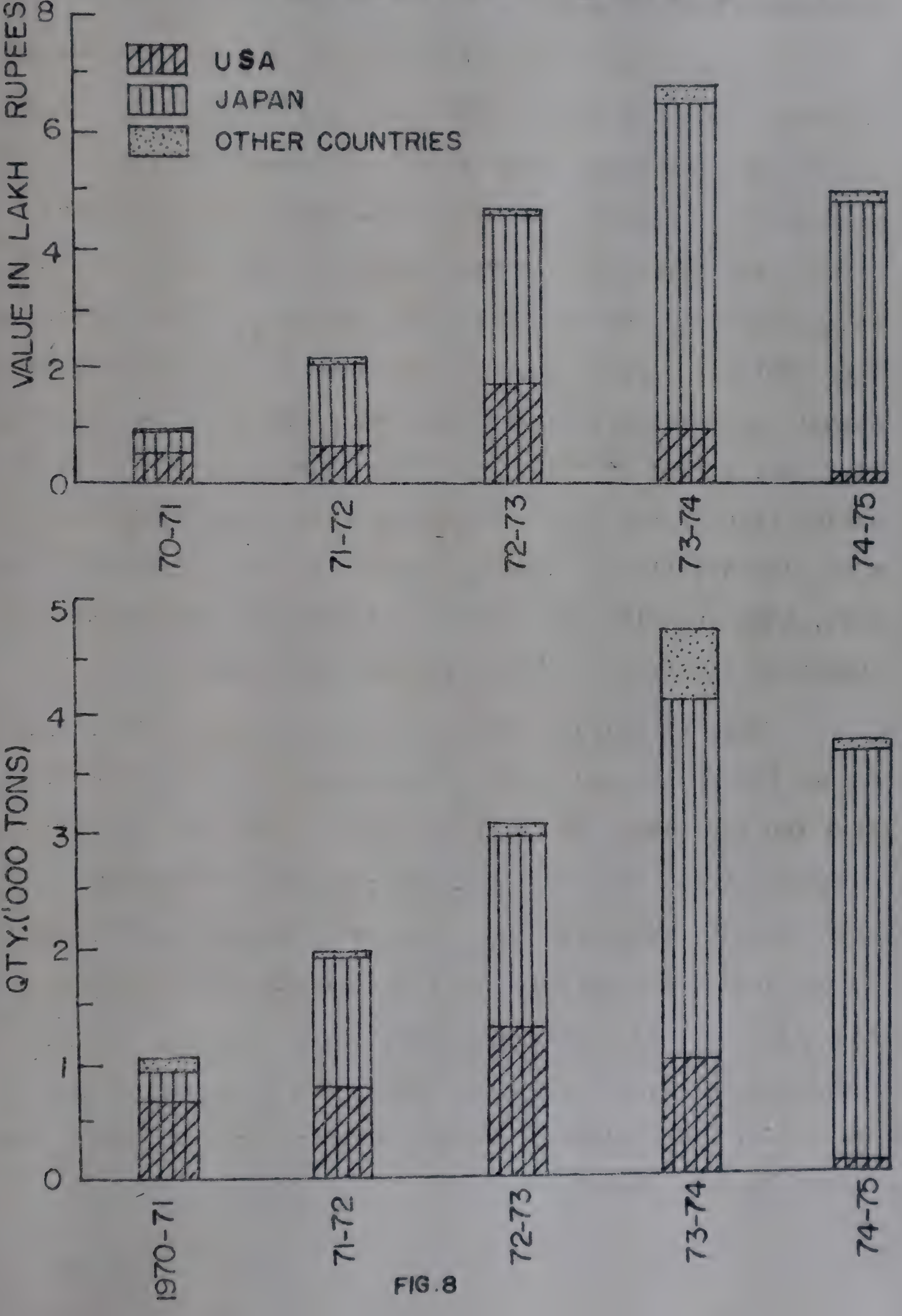
2,900 tonnes, as compared with 655 tonnes during 1965-66 to 1970-71. This would mean that the export trade of the marine products in the district is not only stabilised but also is fast developing since 1970-71. However, one reservation in the data available on exports has to be noted before interpreting too much from the figure of the two five years period. It is found out that before opening up of the New Mangalore Port for the regular traffic some exporting houses were using the facilities of Cochin Port. Data on such exports were not recorded at Mangalore Port. But this limitation of the data cannot be overcome. It would not be grossly wrong to assume that such exports through Cochin Port could not have been very substantial, especially in the light of high, and sometimes prohibitive costs involved in transporting such cargo through special vehicles on such long distances and the risk of spoilage in the process of such transport.

The data compiled by the MPEDA is for January to December and that by the Mangalore Port is for March - April. Hence the exact annual share of Mangalore Port in the total marine products export of the country cannot be provided. MPEDA's own publication provides the latest figures for 1974 only and the use of these data has to be ruled out due to non-comparability with the data already being used in this study.

Destinations of Exports:

In the overall evaluation of the exports the destination-wise analysis of the data plays a crucial role. A wide-spread out of foreign markets not only speaks of maturity of exports of a commodity but also reveals how far it can diversify the marketing the world over and thus minimise the vulnerability of having only a few buyers. It is in this context that the destination-wise analysis of the marine products exports is considered essential here. The data for only the five year period of 1970-71 to 1974-75 are analysed. It is during this period that the exports have reached all time high with some stability. Table 57 provides the analysis of export data, both quantity as well as by value, as between leading importing countries of U.S.A., Japan and others.

Table 57 reveals that U.S.A. and Japan together import almost the entire quantity of the marine products exported from the district. In the year 1970-71 these two countries accounted for over 90 per cent of quantity of exports. In the year 1974-75, the share has increased further, up to nearly 98 per cent. New York in U.S.A. and Yakohama in Japan were the major port of destinations for these exports. Other countries to which the marine products were exported are Australia, West Germany, France, Britain and some middle east countries like Kuwait.



COUNTRYWISE ANALYSIS OF MARINE PRODUCTS EXPORTS BETWEEN 1970-71 & 1974-75

FIG.8

Table 57: Country-wise analysis of Marine Products Exports between 1970-71 and 1974-75.

(Quantity in tonnes; value in lakh rupees).

Year	U.S.A.		Japan		Other Countries		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1970-71	650 (62.8)	51.40	290 (28.0)	30.67	95 (9.2)	0.73	1,035	82.80
1971-72	808 (41.3)	60.51	1,122 (57.4)	152.78	25 (1.3)	0.46	1,955	213.75
1972-73	1,343 (44.2)	164.05	1,602 (52.7)	294.90	95 (3.1)	6.78	3,040	465.73
1973-74	1,008 (21.8)	84.31	3,110 (66.0)	563.94	596 (12.6)	34.00	4,714	682.25
1974-75	50 (1.3)	7.45	3,628 (96.7)	474.17	76 (2.0)	15.66	3,754	497.28

Note: Figures in brackets indicate the percentage share of each country in the total quantity of exports of marine products.

Date source: Assistant Director of Fisheries, Mangalore.

However, the relative shares within U.S.A. and Japan in the exports have undergone practically an inverse change between 1970-71 and 1974-75. The U.S.A., which accounted for as much as 62.8 per cent of the quantity exported in the year 1970-71, imported as little as 1.3 per cent of the quantity exported in 1974-75, a very steep decline indeed. The U.S.A. has been gradually losing place to Japan since 1970-71, whereas Japan's share in the quantity exported has increased from 28 per cent in 1970-71 to a monapoly situation of 96.7 per cent. In terms of value her share during the same period has increased nearly three times from 37 per cent of the total value of marine products exported to 99.8 per cent.

It was revealed during the discussions with the exporters that such a monopolistic situation of Japan is an outcome of the recent Indo-American overall trade relations. With gradual tapering down preference of U.S.A. to buy Indian goods the Japan's influence on American Markets has increased. Even earlier, Japan had better access to and favourable acceptability for its goods in American markets. Now the situation has only become more favourable for her. It is also said that Japan buys Indian marine products only to be resold to U.S.A., the ultimate market for such products, at a considerably higher price. Sometimes, repacking is done for better market appeal on which American consumers very much depend. For such good packaging and goodwill Japan earns good profits, whereas exporters at home are happy to have sold their stock to some interested party or the other. It need not be pointed out that such concentration of markets at the hands of a single country is not a happy situation, especially in these fast changing political allignments in the international scene to which a country's exports are highly vulnerable.

India has been very eagerly and tirelessly trying to appease the noveau-riche oil owning countries of the Middle-East ever since the international oil-price show down of 1973. Some recent long term agreements on trade with Iran, and some Gulf countries are good examples. With their recently acquired hard currency stocks these countries naturally seem to be area of trade interest for India, and marine products exports cannot be an exception to this general rule. However, the exporters have different view. Some of them pointed out that firstly, the type of marine products now exported are not the one required by these countries at least not now. May be with gradual stabilisation of their newly acquired riches their cuisine will include some of these marine delicatesse. Secondly, some of these countries have their own rich marine sources in Mediterranian sea. Thirdly, it would be easier markets for the countries to penetrate those who at present provide them with hard currencies, viz., U.S.A., European countries and Japan. Lastly, experiences of some of the exporters in the past to establish rapport with some of these countries have not been very encouraging, rather they have been very disappointing. But some way has to be found to diversify the markets abroad and to get away from the current stiffling grip of a single country. Future development of this industry hangs very much on such an endeavour.

Product-wise Analysis of Exports:

The number and varieties of marine products exported would further clarify as to how narrow-based the marine products industry of the district has been. The chapters on consumption pattern as well the processing units have, to to some extent, revealed this aspect of the industry. Here the issue will be exposed in greater details. Table 58 provides the percentage share of the frozen prawns in the total marine product exports. This table discloses the second characteristic feature of the marine products exports. It can be seen that only in the year 1965-66, the frozen prawns constituted comparatively a small share (though single major item) of the total quantity, 40.8 per cent, and of the total value, 45.0 per cent, of the marine products exports.

Table 58: Percentage share of Frozen Prawns in the Total Marine Products Exports - 1965-66 to 1974-75.

Year	Quantity	Value
1965-66	40.8	45.0
1966-67	97.5	94.1
1967-68	80.4	74.1
1968-69	77.3	94.1
1969-70	72.5	84.8
1970-71	90.6	98.3
1971-72	99.8	99.0
1972-73	97.1	98.4
1973-74	90.3	96.8
1974-75	99.5	98.7

Source: Assistant Director of Fisheries, Mangalore.

However, since then this product has come to completely monopolise the marine products exports to the extent that in the year 1974-75, it accounted for 99.5 per cent of total quantity and 98.7 per cent of the total value of marine products exports. It has to be pointed out that during the first five years of the study, 1965-66 to 1969-70, on an average, frozen prawns accounted for only 73.7 per cent of the total quantity and 78.4 per cent of the total value of the marine products exports, whereas the averages for the second five years of 1970-71 to 1974-75 is 95.5 per cent and 98.3 per cent of the total quantity and total value of such exports respectively. As against this, in 1973 the share of frozen shrimps in the marine products exports from India was 73.6 per cent of the total quantity and 82.7 per cent of the total value of such exports. Even though, the share is substantially high, it is not as high as in the south kanara region.

It means that the phenomenal growth shown by the export of marine products, both in terms of quantity and value, especially since 1970-71, has been entirely due to extraordinary increase in the exports of one single product, viz., the frozen prawns. It is also observed that along with such increase in the frozen prawns, the exports of other marine products, such as canned products, fish oil, lobster tails, frog legs, fish meal, shark fins, wet cured fish, salt cured and dried fish, frozen shells, have not only decreased in absolute terms but have also become very irregular and staggering. It seems that the easy marketing, adequate profit margin and the processing advantages of frozen prawns have elbowed out the other marine products from the export trade. Table 59 provides the relative prices of raw prawns and the prices fetched by exporting them in frozen form during 1965-66 to 1974-75.

Table 59: Average Price of Raw and Frozen Prawns during 1965-66 to 1974-75.

(Price per kilogram in rupees)

Year	Raw Prawns	Frozen Prawns	Price Spread
1965-66	0.33	6.00	5.67
1966-67	0.69	4.00	3.31
1967-68	1.06	9.00	7.94
1968-69	1.17	10.00	8.83
1969-70	1.74	8.00	6.26
1970-71	1.40	9.00	7.60
1971-72	1.67	23.00	21.33
1972-73	1.90	16.00	14.10
1973-74	4.41	15.00	10.59
1974-75	2.69	13.00	10.31

Note: 1. Average prices are worked out from the total value fetched by the prawns in the respective years.

2. Average prices of Frozen Prawns are worked out from the value of exports in respective years.

3. Differences in grades are ignored.

Source: Assistant Director of Fisheries, Mangalore.

Table 59 reveals the possible secret of the popularity and monopoly of the frozen prawns in the marine products exports. The price spread, i.e., the margin for the cost of processing and for profit left by the difference between the raw prawns price and the frozen prawns, seems to be quite attractive. About the processing costs some facts have to be revealed. It is found that the "carry over costs", i.e., the maintaining the stocks of finished goods, could not be very substantial as the stocks are despatched to foreign markets almost concurrently with processing. The peak seasons for raw prawns and the peak export periods, as disclosed by most of the processors/exporters are more or less the same. Secondly, it has been seen elsewhere in the study that the processors do not carry a large staff. Employees are mostly hired on temporary basis. Even the processing required for prawns are neither complex nor time consuming and costly. It is mainly involved with peeling and grading. Deep freezing and freezing being only a routine matter. Hence the two factors, viz., carry over costs and the labour costs, which should have added up to substantial proportion of the total processing costs do not seem to be so in reality. Therefore, it is to be believed that the profit margin for the processors/exporters is quite substantial, and this supposition is supported by the instances of prosperity, which are not very rare, and the increasing number of such processors/exporters in the recent past.

Therefore, the marine products export in essence means "one product and one market" affair.

Exporting Units

Data are being compiled exporter-wise by the Assistant Director of Fisheries, Mangalore, only since 1973-74. Such a data provide illuminating details of the dispersion of the actual exports as between various exporting units. In the year 1974-75, as many as 43 exporters participated in the exports. Table 60 provides the break-up of quantity and value of frozen prawn export as between 18 exporters in the year 1974-75. As the frozen prawns, as already seen, account for 99 per cent of both quantity and value of marine products exports, generalised interpretations on this basis would not be wrong.

As is made clear by Table 60, of the 43 exporters in the year 1974-75, 18 accounted for 86 per cent of the quantity and 87 per cent of the value of frozen prawns exports, whereas the share of remaining 25 exporters was only 15 per cent of the quantity and 13 per cent of the value of exports.

The concentration of the exports, both in terms of quantity and value, is of higher degree among a few exporting units. As it can be seen from the Table 60, the top 5 exporters accounted for 41 per cent of the quantity and about 43 per cent of the value of exports. The next 5 units accounted for a further 23 per cent of the quantity and 21 per cent of the value of exports. Thus only 10 units shared amongst themselves about 64 per cent of both quantity and value of exports.

Table 60: Exporter-wise Analysis of Frozen Prawns Exports in 1974-75.

Sl. No.	Name	Quantity (in tonnes)	Percentage share in total exports	Value (in lakh rupees)	Percentage share in total value of exports.
1.	Mulbery Aquatic Products	407	(10.9)	55.70	(11.2)
2.	Sterling Sea Foods	327	(8.7)	38.57	(7.8)
3.	Santosh Aquatic Products.	306	(8.2)	43.89	(8.8)
4.	Western Sea Foods	291	(7.8)	45.07	(9.1)
5.	Samundra Fisheries	218	(5.8)	29.24	(5.8)
6.	Apollo Sea Foods	216	(5.8)	27.03	(5.4)
7.	Mangalore Sea Foods	190	(5.1)	31.86	(6.4)
8.	Ocean Star	176	(4.7)	12.16	(2.4)
9.	Vikram Fisheries	141	(3.7)	18.64	(3.8)
10.	Karnataka Fisheries Development Corporation.	139	(3.7)	16.28	(3.3)
11.	Tata Oil Mills	127	(3.4)	19.73	(4.0)
12.	Canara Sea Foods	116	(3.1)	16.26	(3.3)
13.	Kwality Sea Foods	113	(3.0)	14.93	(3.0)
14.	Coronet Canning Company	110	(2.7)	13.86	(2.8)
15.	Eastern Sea Foods	92	(2.5)	11.38	(2.3)
16.	Shrisons Sea Foods	89	(2.4)	11.41	(2.3)
17.	National Marine Products.	77	(2.1)	11.93	(2.4)
18.	Southern India Marine Agencies	74	(2.0)	14.55	(2.9)
	Total share of 18 units.	3,199	(85.6)	432.49	(87.0)
	Total share of other 25 units	555	(14.4)	64.79	(13.0)
	Grand Total	3,754	(100.0)	497.28	(100.0)

Data source: Assistant Director of Fisheries, Mangalore.

However, the actual degree of concentration is still higher if one were to take into consideration the inter-firm link-ups among the exporters, - though, it should be added here that such inter-linking is not easily to be exposed or established. But, if not very conspicuous this phenomenon becomes obvious on further exposition of certain observations.

In the year 1973-74, there were 55 exporters who participated in marine products exports, or to be more specific, in the frozen prawns exports, whereas in the year 1974-75, the number came down to 43. But, even amongst these 43 exporters in 1974-75, only 24 firms were those who had participated in exports during 1973-74 and other 19 units were new firms. It is doubtful whether in such specialised field as marine products exports which requires substantial contacts, money and business skills, such spontaneous growth of exporters is possible. The only possibility in such cases is that the established exporters could channelise their exports through newly created firms in the name and ownerships of their kiths and kins. Such a modus operandi might also overcome the possible higher burden of taxes, especially the income-tax. Further, it can be noted that the share of some of the old and well established processors in exports does not seem to commensurate either with their processing capacity or with their known potentiality. Thus, certain processors might directly export only a minor share of their output and the remaining portion might be "sold to" an exporting firm, which is naturally owned by the near and dear ones, which undertakes to export the product in its own name to the very same market as that of the processor.

Sometimes, breaking up of partnership of an exporting firm might lead to outgoing partner setting up his own exporting firm. And it is also to be noted that partnership as a form of ownership is quite popular in this industry. Such breaking up of partnership might genuinely lead to multiplicity of exporters. But such events cannot be on a large scale. At least not to the extent as to justify the mushroom growth of new exporting firms.

It is also possible that the various subsidy schemes and entitlement schemes that this industry enjoys might be responsible in their own way, for such a phenomenon. In the long run, such spontaneous growth of new firms cannot be good for the healthy growth of this industry. Apart from creating an unjustifiable sense of "high risk" in this business, how far it is harmful in establishing a goodwill and prestige, which are essential in export trade, has to be left to one's own understanding and imagination.

The share of Karnataka Fisheries Development Corporation in the exports during 1974-75 has been only about 4 per cent of the quantity and about 3 per cent of the value of exports. Under the existing circumstances how far the Corporation can increase its exports is the question on which the concerned authorities have to seriously ponder over especially now that the Corporation is going deeper into red.

Future of the Industry:

Thus, the characteristic feature of marine product exports could be extended further and stated as - "single product, single market and only a few top exporters". The situation is not with which one could be happy about. How long this industry on which a lot of subsidy is being paid by government on mechanised boats, on preservation and processing plant and on export, can afford to continue to be so highly narrow-based is a question which should attract the attention of the concerned authorities.

The future growth of this industry very much depends upon diversification. Diversification of its product base so as to include other items, though at present not highly lucrative, such as tuna, fish oil, fish manure and canned fish. The diversification of market, so as not to be so vulnerably exposed as at present. Then the diversification of ownership base, not merely new name plates but new entrepreneurs. Now that special fishing projects with many fishing harbours are coming up, the time is ripe to convert this "fair-weather" industry into seasoned and strong one.

Chapter XII

SUMMARY AND SUGGESTIONS

SUMMARY

Chapter I

INTRODUCTION

Marine Fishery Industry of the Country:

The country's 5600 kms coastline, spread over three seas, provides rich marine resources. The present exploitation of these resources are far less than the real potentiality. The west coast of the country contributes two-thirds of the present marine landings. Kerala state accounts, on an average, for nearly 50 per cent of the marine landings of the west coast. Oil sardines, prawns and mackerels account for nearly 50 per cent of the marine landings of the country. There exists a coast-wise and state-wise specialisation in the species. Oil sardines being exclusive species of the west coast and about 80 per cent of this species is accounted by Kerala coast alone. Similarly, Karnataka coast specialises in mackerels and is also called as 'mackerel coast'. With more than 9,000 motorised fishing boats mechanised fishing is gradually picking up. The marine products exports from the country has shown a significant upward trend, both in terms of quantity and value. The increase is more significant since 1966 devaluation of rupee. The exports in 1960 were

16,337 tonnes valued at Rs.40.22 lakhs, whereas in 1974, 46,629 tonnes of marine products valued at Rs.763.10 lakhs were exported. Product-wise prawns, frozen, dried and canned accounted for about 77 per cent of quantity and about 90 per cent of the value of marine products exports. The establishment of Marine Products Export Development Authority and the Marine Products Promotion Council is intended to help export trade of marine products from the country. At present the export of country's marine products is heavily concentrated in two countries, viz., Japan and U.S.A. They account for about 74 per cent of the quantity and about 84 per cent of the value of these exports.

Marine Fishery Industry of Karnataka:

The state has about 300 kms of coastline, which is about 7 per cent of the total coastline of the country. It has two coastal districts - North Kanara and South Kanara. The coastline is, more or less, evenly distributed among these two districts. The existence of coastline on the country's west coast, which is acclaimed as one of the best fisheries of the world, makes the state one of the leading maritime states of the country. The state's share in the country landings have been around 12 per cent. But the state's share in the country landings have been around 12 per cent. But the state's share in the west coast's total landings has been on decline. It was 16.1 per cent in 1964, whereas in 1973, it came down to 11.5 per cent. This phenomenon is despite the appreciable mechanisation of fishing during the same period. This means that the state has not been keeping pace with the overall increase in the landings of the west coast.

Species-wise, oil sardines, mackerels and prawns (penaeid) are the dominant varieties of the state. However, it has a sort of monopoly in the country over mackerels whose landings have shown an appreciable increase over the period of 1964-73. A linear relationship in the landings of oil sardines and mackerels in the coast is observed over last ten years period. The increase in one of these two species has always been at the cost of the other species, and the inverse was true. The prawns landings have shown a significant increase from 1,040 tonnes in 1964 to 8,235 tonnes in 1973.

Mechanisation of fishing has shown a good progress since 1957-58. With only two mechanised boats in that year the number had increased to 1,123 in 1972-73. More than two-thirds of these boats belonged to 30' and 32' categories. Government subsidy schemes have helped the process of mechanisation of fishing industry. Apart from these, there were 8,000 country boats in operation.

The exports of marine products from the state have increased from about 419 tonnes, valued at Rs.36.73 lakhs in 1968-69 to about 3,040 tonnes, valued at Rs.465.73 lakhs in 1972-73.

The South Kanara district predominates over North Kanara district in the field of marine fishing industry. It has a major share in all facet of fishery industry: number of mechanised boats, number and capacity of preservation and processing units and in marine products exports. The broad based and well developed economy of South Kanara has helped such a predominance.

Chapter II

LANDINGS AND RESOURCES

Landings

There has been steep variations in the total marine landings. Sometimes, variation is as high as 100 per cent over the landings of preceding year. The total landings which were 41,000 tonnes in 1956-57 increased to 58,200 tonnes in 1974-75. But the highest landings recorded was 84,000 tonnes in 1966-67 and the lowest was 27,000 tonnes in 1959-60.

In terms of value, the landings have increased from Rs.48 lakhs in 1956-57 to Rs.414 lakhs in 1974-75. But the highest value realised was Rs.805 lakhs in 1973-74. Even though there was an increase of about 5 per cent in the quantity of landing in 1974-75 over 1973-74, there had been nearly 50 per cent fall in the value realised.

The district has three coastal taluks of Mangalore, Udupi and Coondapur. These taluks have coastline of about

45 kms, 38 kms and 58 kms respectively. The two taluks of Mangalore and Udupi jointly account for nearly 50 per cent of the average landings of the district.

The district has 15 landing centres. Mangalore and Udupi taluks have 6 landing centres each and Coondapur taluk has the remaining 3 landing centres.

Oil sardines, Mackerel, Prawns, Silver Bellies, Seer Fish, Cat Fish, Sciaenids, Soles and Sharks, Rays and Skates are the nine important species of the coast. They account for about 70 to 80 per cent of average landings during 1965-66 to 1974-75.

Oil Sardines constitute the bulk of the total quantity landed in the district. This species accounted for about 60 per cent of the total landings in 1974-75. But during the period of 1965-66 to 1974-75 this species has shown a significant decline in landings, particularly during the second half of the period.

Even though the state's coast is called as "Mackerel coast", the landings of Mackerels in the district have not been significant, at least in comparison with Oil Sardines.

Prawns have shown an increased landings over the period of 1965-66 to 1974-75 from 3,452 tonnes to 5,071 tonnes. Quantitatively Prawns do not have major share in the total landings, but account for more than 50 per cent of the total value of landings of all the species in the district's coast, Such is the commercial importance of Prawns.

During 1965-66 to 1974-75, prices of all the species have shown a great buoyancy. The increase ranges from 276 per cent in the case of Oil Sardines to 827 per cent in the case of Prawns. This explains the disproportionate increase in the quantity and value of landing over the said period.

Resources

The fishable area of the district is estimated at 16,000 square kilometres of which only one-fifth is said to be exploited at present. Specific detailed surveys of the riches of the marine resources of the coast have not yet been conducted. The establishment of the Exploratory Fisheries Unit by the Central Government at Mangalore and the establishment of a survey unit of its own by the State's Fisheries Department heralds a beginning of much needed evaluation of the marine wealth of the district.

The existing and already proven areas of fisheries in the district have the threat of possible pollution from the upcoming industrial complex on Mangalore-Udupi coast. Pollution threat is no less from the new all-weather port at Mangalore.

The proposed enactment to clamp a control over the fishing areas is very much resented by one and all concerned in the industry. Similar attempt by the Madras Government in the year 1943 was gradually allowed to be lapsed in 1947 due to non-practicality. However, the fishermen of the district are in favour of some control over the harmful methods of fishing adopted, more particularly by the fishermen coming from the neighbouring states.

Chapter III

MECHANISED AND TRADITIONAL FISHING

Mechanised Fishing

The number of mechanised boats in the district has seen a tremendous increase from only 9 in 1958-59 to 864 in 1974-75. The increase between 1965-66 and 1974-75 is more rapid from only 128 in the beginning of 1965-66 to 864 at the end of 1974-75. In percentage terms the increase is over 600 per cent. The Government's subsidy scheme, under which a total subsidy of about Rs.37.78 lakhs (on 436 engines) has been disbursed between 1962-63 and 1974-75, the timely financing under Agricultural Refinance Corporation scheme and also the positive and enterprising attitudes of the commercial banks have helped in the growth of number of mechanised boats. The Malpe fishing harbour under construction and the proposed conversion of old Mangalore port into another fishing harbour in the district hold good prospects for further growth in the mechanisation of fishing.

Despite the significant increase in the number, the percentage share of the mechanised boats in the district's average total landings has been only around 20 per cent. However, during the second five years of 1965-66 to 1974-75 have seen an improvement in their share in total landings. It averages around 25 per cent. However, in terms of value, the share of mechanised boats in the value of total landings has been quite substantial at around 60 - 70 per cent. This phenomenon is due to the fact that these boats are mainly engaged in commercially important, high unit cost and small sized prawns. Mechanised fishing in the district is highly centered around prawns. It is, rather, only a "mechanised prawn fishing".

More than 50 per cent of the total mechanised boats are found not operating even during the peak fishing period. Either they are away in distant waters or kept idle. The second alternative seem to account for larger number of unaccounted boats.

Partnership feuds have undermined the maximum utilisation of the mechanised boat fleet in the district. The interesting feature is the presence of female partners in the partnership of mechanised boats. Partnership was made a prerequisite both for the security of funds as well as to stretch the benefits of subsidies and institutional finance to as many "active and able fishermen" as possible. The presence of female partners, though cannot be questioned on the broader principle of equity, has deprived genuine active and able fishermen of such benefits.

At present, nearly 90 per cent of the mechanised boat fleet of the district consists of 30' and 32' length size. These boats have been found unsuitable and uneconomical for fishing operations in the area.

Traditional Fishing

In 1974-75, the district had 1,029 country boats and 2,731 canoes operating on traditional lines. The sizes, mostly are 20', 25' or 40'. The traditional fishing land about 75 to 80 per cent of the total landings. The Oil Sardines and Mackerels are exclusively fished by these boats. Their share in the prawn landings is also cognisable.

Even though traditional fishing appears to be crede from the point of view of modern technology, it has its own specialisations and sophistications. Under this method different nets are used for fishing different species. The use of nets is also governed by the seasons. The Rampani fishing, though only about 75 to 80 years old, is the special feature of this coast. It is an endeavour in co-operative team spirit. 50 - 100 persons pool their fishing equipments, mainly nets, and share the proceeds of the landings. It is highly an organised affair with an accountant (Shanubhogue) and an organiser (Thandel) of its own. The accounts are maintained for all round the year and part payments are made to the members to facilitate their day to day living.

Rampani operations are long drawn affairs. Sometimes, as many as 700 pieces of nets are joined together. The main wooden boat "Padavu" is meant for hauling this massive piece of jointed nets. It is helped by the "watch out" boats and canoes in the operation. The Rampani belongs to a "Shore seine" group of fishing. The "Kairampani" is a small Rampani used in seasons and places where the main Rampani cannot be used.

With a large fishermen population and huge capital investments involved in the mechanisation of fishing, the traditional fishing will continue to play its role in the fishery industry of the coast.

Chapter IV

FISHERMEN

There are 85 fishermen villages in the coast. 23 of these villages are located in Mangalore taluk, 38 in Udupi taluk and 24 in Coondapur taluk. As per 1971 census the fishermen population of the district was 60,000. This consisted of 15,365 active adult fishermen. Of these, 12,910 were full-time, 2,225 were part-time and 230 were seasonal fishermen.

Majority of the fishermen in the district belong to the Mogaveera community. Other communities include Bovies, Kharvis, Harikanthas, Daljees and Moplas.

Fishermen are a highly organised group and have their own "Sabhas" to solve their internal disputes. Co-operation among themselves has been the special feature of fishermen. They have their own house-organ type journals like, Mogaveera, Matsya Loka and Meenugara.

Joint family system is predominant among fishermen. Large families are commonly found. The annual average earnings were Rs.1,000 to Rs.1,200 per person. This was irrespective of whether the person was involved in mechanised fishing or the traditional fishing.

Membership in the co-operative societies is quite common. Life Insurance coverage was more popular among mechanised boat owning fishermen. Taking alcohol was not uncommon amongst fishermen.

Fishermen are not inclined to encourage their children to continue their profession, whereas the parents want their children to be educated and to go for better jobs.

Chapter V

CO-OPERATIVE INSTITUTIONS

Primary Fishermen Co-operative Societies

There are 34 Primary Fishermen Co-operative Societies in the district. They have a total membership of 12,980 and a total paid up share capital of about Rs.4.97 lakhs. The majority of the societies have a membership of less than 500, and a share capital of less than Rs.20,000.

The funds, reserves and deposits position of these societies do not reflect a satisfactory performance. The societies have not borrowed significantly from the commercial banks, even though these banks have an enviable records of performance in the district.

Provision of loans to members is common function of these societies. Normally, loans up to Rs.10,000 to individual members are provided. The recovery from the members has not been satisfactory.

The societies were not earning adequate profits and he hence could not build up their own reserves and investment funds.

These societies are confronted with many problems, starting from the non-availability of trained employees to manage them, to the inadequate capital base. The laws governing these societies, and their objectives seem to have become outmoded in the light of changed situation in the fishery industry. These laws seem to hinder their normal functioning.

The growth of the activities of South Kanara District Co-operative Fish Marketing Federation has also been responsible, to some extent, for the present unsatisfactory situation of the Primary Fishermen Co-operative Societies. These societies have not been actively participating in the process of mechanisation of fishing in the district.

The South Kanara District Co-operative Fish Marketing Federation

It was started in the year 1954 with a share capital of Rs.10,000 and a total membership of 102. Today, it has a share capital base of Rs.9.72 lakhs and a total membership of 2,033. The total borrowed capital to date exceeds Rs.140 lakhs.

The Federation has been actively participating in the mechanisation of fishing. The funds for mechanised boats under ARC scheme, under SBM scheme as also some government schemes have been channelised through the Federation.

The major business activities of the Federation are: (1) Financing of mechanised boats; (2) Credit sale of equipment, spare parts, diesel and other oils to its members; (3) Marketing of fish and (4) Processing and exports. Since 1965-66, there has been a tremendous increase in its all the four fields of activities.

The Federation has been incurring losses since 1970-71. The accumulated losses up to 1974-75 amount to Rs.39.14 lakhs. The two main causes for losses have been the lack of prompt repayment of loans provided on the mechanised boats and the faltering landings for the auction by the mechanised boats financed by/through it. Even the performance of its processing and export trade has not been very satisfactory.

Some steps have been undertaken to streamline the financial condition of the Federation.

Chapter VI

GOVERNMENT AND FISHERIES DEVELOPMENT

The marine fishery industry is being administered by the Fisheries Division, established in 1970-71. One Deputy Director of Fisheries and five Assistant Directors of Fisheries constitute the strength of this Division. Both plan and non-plan schemes of fisheries development are channelised through this Division.

In the initial stages of the development of this industry in the district the Department has played many a pioneering role, like in the introduction of mechanised boats, construction of mechanised boats, training fishermen for mechanised boats, the establishment of a chain of preservation facilities such as ice production, cold storage, freezing and frozen storage and the much needed welfare of the fishermen in the changing technological world. It was also in charge of Fishermen Co-operative Societies and the Fisheries schools.

With the establishment of Karnataka Fisheries Development Corporation much of the activities of the Department have been reduced. Similarly handing over of fisheries schools to the Education Department and overall management of societies to Co-operation Department have further decreased the field of participation of the Department.

The establishment of the Survey Unit seems to herald a new pioneering as well as participative role of the Department in the fishery industry of the district.

Chapter VII

KARNATAKA FISHERIES DEVELOPMENT CORPORATION

The Corporation was established in the year 1970 with very broad based objectives. It is a State Government undertaking. Authorised share capital is Rs.300 lakhs and the present paid up capital is Rs.21 lakhs. The chain of preservation units, processing plants, boat building yards and special transport vehicles held earlier by the Fisheries Department were transferred to the Corporation on its formation.

The field of activities of the Corporation is spread over the whole state. It maintains many cold storage facilities in North Kanara, Hassan, Bangalore, Mercara and Mysore Districts. It aims at establishing a "cold chain" to supply fresh marine fish to hinterland areas.

The Corporation possesses its own trawlers and conducts fishing operations. It also processes and exports marine products. Leasing out of facilities is also one of the activities of the Corporation.

The Corporation has been incurring losses ever since its inception and accumulated losses during 1970-71 to 1973-74 amounted about Rs.11 lakhs. But the losses will be much higher if depreciation on machinery and deputation allowances on deputed staff are added up. One of the main causes for the losses is the two fishing trawlers. Second cause is the depreciated plant and machinery, and the third cause is the la large dose of deputed staff from the government.

Some steps have been already undertaken to minimise the losses. But the real solution to it lies in the distinction of 'developmental' and the 'business' activities of the Corporation.

Chapter VIII

FINANCE

The mechanised fishing and the export of marine products have made this industry a highly capital intensive industry.

Government subsidies on mechanised boats and on preservation and processing plants have mitigated to a great extent the financial burden on the fishing industry.

The commercial banks have been participating in a big way in financing this industry. Even though they finance mechanised boats on long term basis their participation is very high only in short term export trade financing.

Like in the case of Peru, equity capital of this industry seems to have been dwarfed by the high dosage of debt financing.

Chapter IX

CONSUMPTION PATTERN

Fresh Fish Consumption

On an average about 45 per cent of the total landings of marine fishes are consumed in fresh form. The share of the local markets in the fresh fish consumption has remained, more or less, stagnate, whereas that of upghat markets has shown some appreciable increase.

Species-wise on an average 50 per cent of Mackerels, 45 per cent of Oil Sardines and only 4 per cent of Prawn landings are consumed in fresh form. In the case of most of the other species more than 90 per cent of landings are consumed fresh.

Processing

On an average 55 per cent of the landings are processed. There are seven major processes, viz., curing, sun drying, freezing, canning, oil extraction, manuring and fish meal. Curing accounts for the greater share in the total quantity quantity processed, even though there has been a gradual decrease in its share. The share of other processes vary from year to year. Freezing has been steadily on increase over the 1965-66 to 1973-74 period. The share of canning has been decreasing since 1970-71. Manuring process is next only to curing in share of total quantity processed.

Mackerels, Oil Sardines, Cat Fish are the major species cured. Other species include Soles and Silver Bellies. In the sun drying, Oil Sardines dominate. The share of Prawns in sun drying has come down very rapidly since 1968-69.

Prawns monopolise the freezing process and nearly account for 100 per cent of the quantity frozen during the 1965-66 to 1974-75 period. Also on an average about 80 per cent of total Prawn landings are utilised for freezing purposes.

Mackerels and Oil Sardines are major species canned followed by small quantity of Prawns.

In oil extraction the Oil Sardines predominate with practically 100 per cent of the quantity used for this process.

Oil Sardines also account for major share in manuring and fish meal production.

Thus, the entire fish processing industry is based on the three species only, viz., Mackerels, Oil Sardines and Prawns.

Chapter X

PRESERVATION AND PROCESSING UNITS

Preservation Units

There are 40 private preservation units who totally own 275 tonnes ice production capacity per day, 46 tonnes of freezing capacity per day, 255 tonnes of cold storage and 1,110 tonnes of frozen storage.

Including the preservation capacities of the Corporation and the Federation, district possesses aggregate capacities of 336 tonnes of ice production per day, 79.5 tonnes of freezing per day, 425 tonnes of cold storage and 2,010 tonnes of frozen storage. The Corporation as a single unit possesses little over one-third capacity of cold storage, daily freezing and frozen storage capacity of the district.

There is a great need for organisations like MPEDA to put up preservation facilities in the district on a large scale.

Processing Units

The district has 18 freezing units, including the Corporation and the Federation, with an aggregate daily freezing capacity of 79.5 tonnes and a frozen storage capacity of 2,010 tonnes. There are 13 canning units, 5 fish oil extraction units and 12 fish meal units.

The processing units are highly capital intensive units. They are mostly family based partnership concerns. These units are apprehensive of some big business concerns entering to fishery industry.

The units expect greater governmental support, both financial as well in kind, in their functioning. They are not very happy with the past performance of the Corporation in the development of fishery industry. They are highly critical of the functioning of the Federation.

The processing units, even though patronise the Federation in purchasing of the raw materials, very much depends upon the middlemen. Not all the processing units possess their own boats to procure the requisite raw material. Leasing in and leasing out of the processing facilities are commonly observed.

The units are not happy with the role of MPEDA in their activities. They want it to play a more active role than merely to act as a registration office.

The labour in the processing units are mostly employed on temporary basis. The number of labour disputes, probably due to this very reason, is not significant. Labour requires a better deal in the processing units.

There is a high degree of concentration of the frozen sea foods and that too only on prawns. The research findings are not put into commercial use. Processing units follow a safe path to secure markets.

Chapter XI

EXPORTS

The share of Mangalore Port in the total marine products exports of the country has increased from 5 per cent in 1971 to 10 per cent in 1974. Its position amongst exporting ports has improved from fourth to third place during the said period.

The exports have increased from 390 tonnes valued at Rs.21.31 lakhs in 1965-66 to 3,754 tonnes valued at Rs.497.28 lakhs in 1974-75. However, 4,714 tonnes valued at Rs.682.25 lakhs in 1973-74 is the highest landmark in the marine products exports of the district.

The marine products exports from the district are highly concentrated on a single market. United States of America accounted for 62.8 per cent of the quantity of exports in 1970-71, whereas by 1974-75, Japan monopolised the district's marine product exports with 96.7 per cent of the total quantity of exports. The exports prospects to Middle-Eastern countries have not yielded any encouraging results in the past.

Product-wise frozen prawns accounted for 99.5 per cent of the total quantity and 98.7 per cent of the total value of marine products exports in 1974-75. The share of other products, such as canned sea foods, fish oil, lobster tails, frog legs, fish meal, shark fins, wet cured fish, salt cured and dried fish, has, over the period, got reduced considerably and has been completely eclipsed by the frozen prawns. Adequate profit margin, secured and safe export markets for prawns have been responsible for such a phenomenon.

In 1973-74, there were 55 exporters, whereas the number came down to 43 in the year 1974-75. The analysis of 1974-75 exports reveals that 18 out of the 43 exporters accounted for 86 per cent of the total quantity of exports. The top 5 exporters accounted for 41 per cent of the quantity and for about 43 per cent of the value of exports. Next five exporters accounted for 23 per cent of the quantity and 21 per cent of the value of exports. These 10 units jointly accounted for about 64 per cent of both quantity and value of exports. The degree of real concentration of export of marine products is higher as there exists some sort of inter-linkings among the exporters.

Excepting for few established exporters, many new names are seen in the list of marine product exporters. There seems to be some name-changing of previous exporters rather than entirely new exporters coming into the field.

An Overall View

The number of mechanised boats, the quantity and value of exports, if considered in isolation would give a misleading picture of the fishery industry of the district. Mechanisation and exports have highly concentrated on prawns. The benefits of these developments have reached only a select few people, whereas the majority of fishermen continue to pursue their profession on traditional lines and are exposed to vagories of landings and price fluctuations. The exports are directed to one single market. Thus, the developments in the marine fishery industry have been lopsided, leading to heavy financing and liberal subsidies aimed at one species, one market and a handful of exporters.

The "high risk" of the industry's export trade seems to be cushioned by the three "shock absorbers", viz., - Government (subsidies and entitlements), fishermen (raw material prices) and the workers (wages and working conditions).

SUGGESTIONS

The foregoing analysis of the fishery industry of the district has exposed many weak links. Such an exposure in itself provides a lot of scope for rethinking on each and every facet of this industry. It would be unrealistic to attempt to provide any package of suggestions which could cure all the ills of the industry. Here, only an attempt is made to highlight some of the areas in which immediate corrective actions can be taken to steer away the industry from the certain rough weather it is going to face, if it continues to pursue its present course.

1. First and the foremost requirement of the industry is a thorough survey of the district's coasts. The steep variations in the landings have to be checked if the industry were to be put on sound foundations. The entire marine resources of the district should be made an open book and this high dependence on the "nature's gift" should be done away with. The survey units should keep track of shoals and inform the fishermen well in advance about the size and location of such shoals.

2. Mechanisation of fishing should be put on more sound lines. Appropriate boats for the coast's fishing should be chosen. In financing and in the provision of subsidies, partners should be chosen on more realistic basis. Only those who can co-operate among themselves should be provided

with finances and subsidies for such boats. The anticipation of ultimate write-off of the loans already provided should be immediately put an end to and more realistic financial relations have to be established with the beneficiaries.

3. There is an immediate need for registering the mechanised boats under appropriately framed law, like in the case of motor vehicles. This would help in keeping a track about the boats.

4. The current fleet of 30' and 32' boats can be tagged on to bigger fishing 'mother ships' on deep-sea fishing expeditions. Such ships should be a "shore away from shore" for these fishermen. The technical feasibility of such a measure should be investigated.

5. All steps should be taken to ensure the maximum operation of the boats and reduction in their idle-time.

6. Traditional fishermen should be provided with the knowledge of new technology and new fishing methods.

7. All requisite attempts should be made to ensure that the traditional fishermen continue to have liking for the profession and that they derive some job satisfaction.

8. The working of Primary Fishermen Co-operative Societies require streamlining. The bye-laws should be updated and their field of activities enlarged so that they also participate profitably in the mechanisation of fishing.

9. The Federation has to recover its overdue loans and interests to save itself from financial bankruptsy. It should decentralise its field of activities and should provide more scope for the operations of Primary Fishermen Cooperative Societies.

10. The Karnataka Fisheries Development Corporation has to streamline its internal organisation and the heavy dependence on deputed staff has to be dispensed with. Suitably trained persons should be employed to replace the present deputed staff.

11. The government has to provide with sufficient capital base for the activities of the Corporation. The piece-meal release of funds, in keeping with the quantum of losses, is injurious to the working of the Corporation.

12. Some definite lines of demarcation is necessary between the development and business activities of the Corporation. The developmental activities might need government financial aid, at least in the initial stages.

13. The role of the Fisheries Department requires rethinking and clear-cut direction in the light of the establishment of the Corporation, handing over of the schools to Education Department and Societies to Co-operation Department. The Fisheries Department ought not to be degraded into subsidy distributing office.

14. The activities of Fisheries Department, the Federation and the Corporation have to be properly co-ordinated.

15. The Department ought to collect reliable data on every aspect of the industry. The Statistical Unit should put an end to present situation of conflicting data on crucial matters, such as number of mechanised boats, landings and the exports.

16. Processing requires greater diversification. The research findings of specialised institutions in the field should be commercially exploited. There should be a direct relationship between research institutions on the one hand and the processing units on the other.

17. Oil extraction, fish meal and fish manure processing have greater prospects with adequate landings of the Oil Sardines and similar other species. Peru should be an example to be followed in this regard.

18. Labour in this industry requires a better deal in terms of wages, working conditions and job guarantees.

19. MPEDA should be moved to set up some preservation capacities in the district. MPEDA ought to open its regional office in the district for greater and quicker assistance to the industry concerning all matters.

20. All steps should be taken to decentralise the export markets. New markets have to be found. MPEDA should help

the industry in this regard.

21. Before the new fishing harbours at Malpe and Mangalore are ready for use all steps should be taken to broaden the current base of the industry. Diversification of mechanised fishing to deep-sea, diversification of the processing from frozen to other processes, and diversification of markets constitute the foundations for the future success of this industry.

"Diversify or Decay" will be the only alternative for this industry in the next decade.

Appendix I

BASIC STATISTICS ABOUT THE DISTRICT

I. General Information:

1. Geographical area	8,441 sq kms.
2. Population	19,39,315 (1971 Census)
3. Density of population per kilometre	230
4. Number of inhabited villages	662
5. Number of towns	18
6. Number of villages and towns electrified	580

II. Agriculture:

1. Total agricultural area	8,34,595	hectares	(1973-74)
2. Net area sown	1,88,367	"	"
3. Fallow land	49,653	"	"
4. Forest	2,42,185	"	"
5. Land available for cultivation.	2,13,194	"	"
6. Net area irrigated	74,416	"	
7. Irrigation pumps (No.)	18,072		
8. Number of tractors	222 (1972)		
9. Area under rice	1,75,404	hectares	(1974-75)
10. Area under pulses	11,514	"	"
11. Area under sugarcane	1,581	"	"
12. Area under Fruits and vegetables	37,799	"	(1973-74)
13. Area under cashew	22,954	"	(1974-75)
14. Area under coconut	12,440	"	"
15. Area under areca	10,764	"	(1973-74)
16. Normal rainfall	3932.4 M.M.		

III. Co-operation:

1. Number of Agriculture credit societies	243
2. Other Agricultural societies	5
3. Total number of societies (including liquidated)	1,008
4. Value of short-term credit advanced.	Rs.442.04 lakhs (1973-74)
5. Number of Regulated Markets.	4
6. Value of turnover of Regulated Markets	Rs.350.21 lakhs

IV. Industries:

1. Total number of Registered Factories	790
2. Number of Engineering Factories.	285
3. Number of Textile Factories.	61
4. Number of Chemical Factories.	68

V. Banking:

1. Number of Commercial Bank Branches.	251 (1973)
2. Number of Co-operative Banks	85 (1974-75)

VI. Transport:

1. Length of P.W.D. roads	2,405 kms	(1974-75)
2. Number of major bridges	86	"
3. Length of State highway	489 kms	"
4. Total Registered vehicles	18,982	"

VII. Education:

1.	Total Literacy (per cent)	43.45	(1971 Census)
2.	Male Literacy (")	52.34	"
3.	Female Literacy "	35.04	"
4.	Number of Nursery schools	20	(1974-75)
5.	Number of Lower Primary schools	499	"
6.	Number of Higher Primary schools	1,127	"
7.	Number of High schools	175	"
8.	Number of schools for Professional and Specialised Education, TTC	18	"
9.	College (general, Professional, Research, Technical and Universities)	33	"
10.	Polytechnic and Engineering Schools.	3	"

Source: District Statistical Officer,
South Kanara.

Appendix II

FISHERIES BASIC STATISTICS

1.	Length of Coast line	148.8 kms.	
2.	Number of Fishing villages.	85	
3.	Number of Fishing hamlets	111	
4.	Fishermen population	60,000	(1971)
	Active Adult Fishermen	15,365	"
	Full time Fishermen	12,910	"
	Part time Fishermen	2,225	"
	Seasonal Fishermen	230	"
	Scheduled Castes	217	"
	Scheduled Tribes	76	"
5.	Boats:		
	(a) Mechanised	864	(1974-75)
	(b) Country boats	1,029	"
	(c) Canoes	2,731	"
	Total =	4,624	
6.	Number of Boat building yards	18	
7.	Nets:		
	(a) Drag nets	2,959	(1974-75)
	(b) Gill nets	4,982	"
	(c) Trawl nets	2,456	"
	(d) Cast nets	3,191	"
	(e) Big Rampani	93	"
	(f) Rampani nets	4,712	"
	(g) Others	4,184	"
	Total =	22,577	

8. Number of Fishermen Co-operative Societies 34

9. Number of Fishery Roads 40

10. Length of Fishery Roads 60.8 kms.

11. Predominant Communities:

Daljees	Shiroor (Coondapur Taluk)
Harikanthas	Paduvari "
Kharvis	Gangolli "
	Gujjady "
	Hooadi "
Mogaveera	Kota (Mangalore and Udipi taluks)
	Mangalore.

12. Main Fish Catching Centres (At which the skeleton office of the Fisheries Dept. records approximate weight and value of fish catches.

Mangalore	Udupi	Coondapur
Ullal	Mulki	Gangolli
Mangalore	Kaup	Maravanthe
Bockapatna	Polippu	Tarapathy
Baikampady	Udyawar	
Kulai	Malpe	
Hosabettu	Hangarkatta.	

13. Important Variety of Fish Caught:

Elasmobranches	Sharks
	Rays
	Skates.
Clupieds	Oil Sardines
	White Sardines
	Other Sardines
	Achovies
	Other Clupieds

	Scombroids	Mackerel		
		Seer Fish		
		Tunnies		
		Chorinamus		
14.	Fish Curing Yards:			
	Major Yards	Ullal - established in 1883.		
		Udyawar		
		Malpe		
		Hangarkatta		
		Gangolli	"	1893
	Minor Yards	Mangalore		
		Baikampady	"	1929
		Hosabettu	"	1909
		Kaup		
		Bockapatna		
		Kulai		
		Mulki		
		Polippu		
		Maravanthe		
		Tharapathy.		
15.	Number of Ice Plants.	36		
16.	Number of Cold Storage Plants	13		
17.	Number of Freezing Plants	21		
18.	Number of Frozen Storage Plants.	18		
19.	Number of Canning Plants.	13		
20.	Number of Fish Oil Plants	5		
21.	Number of Fish Meal Plants	12		
22.	Number of Exporting Units	55 (1973-74)		
		43 (1974-75)		

23. Value of Marine Products Exports. Rs.497.28 lakhs (1974-75)

24. Export Markets:

New York
Yokohama
Colombo
West Germany
Marseilles
Rotterdam.
Basrah
Kobe
Baltimore
Liverpool
Kuwait

Sources: 1. Deputy Director of Fisheries, Mangalore.

2. Various Surveys under the present research study.

Appendix III

LIST OF COASTAL FISHERY VILLAGES IN SOUTH KANARA DISTRICT

Mangalore Taluk

1. Bolar - A
2. Bolar - B
3. Mangalore Thota
4. Someshwara
5. Talapady
6. Ullal
7. Buppanad
8. Pavanje
9. Padupanambur
10. Sasihithlu
11. Baikampady
12. Hosabettu
13. Idya
14. Kulai
15. Panambur
16. Surathkal
17. Amblamogru
18. Bangrakulur
19. Jeppinamogru
20. Haleyangadi
21. Thannirubavi
22. Mangalore Kasba Bazaar.
23. Kotekar
24. Karnad.

Udupi Taluk

1. Thonse West
2. Uppoor
3. Varambally
4. Balekuduru
5. Kodavoor
6. Udhyavara
7. Bada
8. Hejmady
9. Mulur
10. Pangala
11. Amblapady
12. Nadsal
13. Uliargoli
14. Kadekar
15. Kidiyoor
16. Padi
17. Manoor
18. Palimar
19. Handady
20. Heroor
21. Harady
22. Kachoor
23. Giliyar
24. Pandeshwara
25. Parampalli
26. Gundmi
27. Irodi
28. Tenkanidiyoor
29. Badakidiyoor
30. Kuthpady
31. Tenka
32. Manipura
33. Yenegudde
34. Karangarapady.
35. Harehally
36. Kote
37. Ambalpady
38. Kotathattu

Coondapur Taluk

1. Beejady
2. Coondapura
3. Hanglur
4. Kumbashi
5. Gangolli
6. Trasi
7. Uppinakadur
8. Kinimajeshwar
9. Maravanthe
10. Paduvari
11. Shiroor
12. Gujjady
13. Baindoor
14. Tekkatte
15. Navunda
16. Badakere
17. Hosadu
18. Gopady
19. Koteshwara
20. Basroor
21. Uppunda
22. Hemmadi
23. Kergal.

Source: Assistant Director of Fisheries, Mangalore.

Appendix IV

IMPORTANT FISHERIES ROADS IN SOUTH KANARA AS ON 1-4-1975

(Maintained by the P.W.D.)

	Length in kms	
Mangalore Taluk:		
1. Sashihithlu Fisheries road	4.8	
2. Mithrapura "	1.0	
3. Surathkal "	0.5	
4. Hosabettu "	0.8	
5. Ullalal "	0.3	
	0.4	0.4
Udupi Taluk:		
6. Hejmadi Fisheries road	0.8	
7. Hejmadi to Kodi village	1.6	
8. T. Yermal	1.0	
9. Bada Yermal	0.9	
10. Koppalangadi	1.1	
11. Kaup to Light House	0.4	
12. Polippu	2.0	
13. Kothalaguttu Kalla to Uliangoli	1.4	
14. Kote village	2.4	
15. At 34/1 of MBC road.	2.4	
16. Kadekar Parangolla Seashore	0.6	
17. Vadabandeshwara Beach	1.2	
18. Malpe via Guggarbetti Bengre Hungacutta	2.4	
19. Malpe-Vadabandeshwar Beach	1.0	
20. Thonse west	1.6	
21. Udupi to Kemmannu	1.6	
22. Sea shore to 48/2 of MBC road	2.4	
23. Mile 52/7 of MBC road to connect Yililar	2.4	
	27.2	27.2

Coondapur Taluk:

24.	Voderhobli Kodi Fisheries road	2.9	
25.	Beejady "	2.4	
26.	Tekkali "	2.3	
27.	Shiroorpet to Sea shore	1.6	
28.	Ambagilu Fisheries road	1.8	
29.	Starting from Kambadakone	2.0	
30.	Starting at Mile 68/0	0.3	
31.	Maravanthe	1.0	
32.	Gangolli-Pet Fisheries road	1.3	
		15.6	15.6
			50.2 kms

Source: Assistant Director of Fisheries, Mangalore.

Appendix V

MILE-STONE IN THE DEVELOPMENT OF FISHERY INDUSTRY IN SOUTH KANARA DISTRICT.

1955: Commissioning of the Mangalore Ice Cum Freezing Plant and Cold Storage heralding the beginning of a new industry of export of frozen fish from South Kanara as well as the beginning of the use of ice and refrigerated storage for preservation of fish in the district.

1957: First demonstration of mechanised fishing by the F.A.O. Expert Mr. Illugason at Mangalore.

1958: Starting of the Government Boat Building Yard at Mangalore from where the know-how of building mechanised boats was introduced to South Kanara.

Starting of the Fisheries High Schools at Polippu and Hejmadikodi.

Starting of the Fishermen Training Centre at Mangalore and where two batches of 50 fisher youths are being trained in mechanised fishing every year.

1959: Commissioning of Coronet Canning Company at Malpe under private sector.

1961: Commissioning of Government Ice Plant at Coondapur.

Starting of Fisheries High Schools at Padubidri and Kemmannu.

34 Feeder roads connecting the main highway with fishing centre along the coast sanctioned by Government.

Starting of the Fisheries High school at Hadavinakone.

1962: Starting of Fisheries High schools at Udyavara and Yermal Bada.

Commissioning of Canara Ice & Cold Storage at Mangalore under private sector.

1963: Commissioning of Udyavar Ice Plant & Cold Storage under Co-operative Sector.

Starting of the Marine Products Processing Training Centre at Mangalore in collaboration with Government of Japan.

1964: Commissioning of Government Ice Plant & Cold Storage at Mulky.

Commissioning of Government Cold Storage Unit at Maravanthe. Starting of Fisheries High schools at Baikampady and Uchil.

Commissioning of Coronet Ice Plant and Cold Storage at Malpe under private sector.

1965: Starting of Fishermen's Training Centre at Gangolli.

Commissioning of Medonna Canning Co. Mukka under private sector.

1966: Agriculture Refinance Corporation sanctioned a 1.25 crores scheme to build and distribute 240 mechanised boats in 3 years through South Kanara District Co-operative Fish Marketing Federation, Mangalore.

Starting of Fisheries High school at Hakladi.

1967: Commissioning of Seven Seas Freezing Plant at Hosabettu under private sector.

Commissioning of Canara Ice Plant at Udyavar under private sector.

Starting of Sowkar Canning Co., Udyavar, under private sector. Commissioning of Coronet Fish Meal Plant at Malpe under private Sector.

Starting of Fisheries High school at Mulur.

1968: Commissioning of Government Ice Plant & Cold Storage one each at Manur and Kaup.

1969. Commissioning of Government Ice Cum Freezing Plant and Cold Storages at Kulai and Ullal.

Commissioning of Ice-cum-Freezing Plant and Cold Storage of South Kanara District Fish Marketing Federation at Mangalore in the Co-operative sector.

Several Ice Plants started with Bank credit at Mangalore, Mukka, Surathkal, Malpe, Sasthan and Gangolli, etc. under private sector.

Commissioning of Santosh Aquatic Products Freezing Plant at Kulur.

About 20 Boat Building Yards started in Mangalore, Malpe, Coondapur and Gangolli to cater to the increased demand for mechanised boats.

Commissioning of Vijayalakshmi Canning Company at Kaup under private sector.

Export earnings from Marine Products of South Kanara exceeded Rupees Crore for 1968-69.

Starting of Fisheries Science College at Mangalore, the only college in India offering a degree post-grad. degree course in Fisheries Science.

1970: Establishment of Karnataka Fisheries Development Corporation in public sector at Mangalore.

1975: Starting of construction work of Fishing Harbour at Malpe.

Source: Department of Fisheries, Bangalore: Fisheries Development in South Kanara District - 1969.

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February 26, 1976

No 1722/76/77

Dear Mr. Sripathy,

Thank you for your letter no. 9(9)/76-837 dated Feb. 18, 1977. Herewith I am sending a copy of the report 'Marine Fishery Industry in South Kanara' by Dr. Chandraprakash for your library and reference. Kindly acknowledge the redeipt of the report.

With regards,

Sincerely yours,
R. N. Achyutha
(R.N.Achyutha)

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